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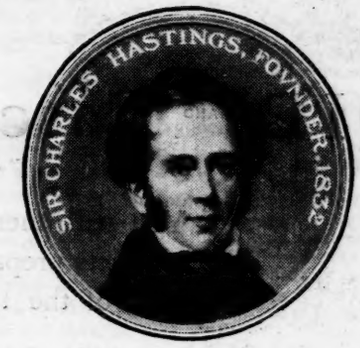

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OPERATIONS SUPPOSED TO PROVIDE EVIDENCE OF THE PRACTICE OF MASSAGE BY THE ANCIENT EGYPTIANS.—With what object massage was used in early Egypt we have no information. It may have been merely one of the civilised refinements of the bath, or a therapeutical agent, or both. Support is gained for the theory that it was medically employed, by the fact that savage peoples have long been observed to use it as a curative method. It was a very ancient practice, as such, in the East, and notably in China, India and among the Turks. Other Egyptian scenes, too fragmentary to permit of exact interpretation, appear to depict the process of remedial massage. In the accompanying illustration, the massage may be either a part of the great man's ordinary toilet or medical rubbing.

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A British Medical Association Lecture

ON

SOME ASPECTS OF CARDIAC DISEASE.*

BY

JOHN HAY, D.L., M.D., F.R.C.P.,

HONORARY PHYSICIAN, ROYAL INFIRMARY, LIVERPOOL.

So much of what appears in the journals dealing with the neo-cardiology, as it has been termed (a term applied partly, I think, in derision), is so technical and so difficult of comprehension that there is a tendency to miss those points which are of real and genuine practical value.

When one remembers that Mackenzie's book, *The Study of the Pulse*, was published in 1902, and that it is only ten years since the electrocardiograph began to be applied seriously to the elucidation of the arrhythmias, it is not difficult to understand why there is still so much haziness and even frank ignorance concerning the newer and more correct views of cardiac disorders. During the last twenty years the whole conception of the arrhythmias and their relation to cardiac failure has been changed.

If these views were nothing more than a revised nomenclature with little or no bearing on prognosis and treatment I would not trouble to discuss them with you; but the reverse is the case. Recent work has made diagnosis more certain, and correct knowledge of the heart is more concise, and as a natural corollary prognosis and treatment are placed on a surer and sounder basis.

I propose to discuss one form of arrhythmia, an irregular action which is extremely common, and which for this, if no other reason, is of considerable importance to us all as practitioners. I refer to auricular fibrillation, and may I make one point here—it is this: irregular action of the heart is not merely a matter of degree—there are definite, clearly demarcated types, varying fundamentally, and it is most important to be able to differentiate between those forms of irregular action which are of no moment and those which indicate serious changes.

Auricular fibrillation is not only of common occurrence, but it is also a serious handicap to the efficiency of any heart, healthy or diseased. The term "fibrillation" is unfortunately often applied rather loosely, showing a lack of appreciation of the fact that fibrillation is a sharply defined condition. An auricle is either fibrillating or it is not fibrillating, and the presence of fibrillation can generally be recognized during the ordinary clinical examination without any special instruments other than a stethoscope and a trained intelligence. At least 50 per cent. of all cases of persistent irregularity are due to fibrillation, and 60 to 70 per cent. of the patients admitted into hospital suffering from cardiac failure show this form of arrhythmia. Experimental work by Eyster and Swarthout on dogs has shown that fibrillation diminished the cardiac output by 40 per cent., and from clinical evidence it is clear that the inception of fibrillation means a sudden and definite increase in the load which the heart has to bear.

Before describing in detail the characteristics of this change and the method of its recognition may I first present a few clinical pictures?

In each of the five patients to be described the heart was beating in a frequent and disorderly manner—possibly with great frequency. It is well to remember that fibrillation may be associated with all grades of cardiac distress.

CASE I.

I have in my mind a man of 69, subject to attacks of "palpitation and fluttering action of the heart." These would come on at any time and without apparent cause, and last as a rule several hours. Their onset was sudden—he knew the moment they began and he knew also the moment of their cessation. He was not greatly distressed by them, but during an attack he did not feel quite himself and was conscious of the rapid and irregular action of his heart. Otherwise he was not inconvenienced and had no hesitation, for example, in setting out on a journey by train. (See Fig. 6.)

CASE II.

The second patient, a man of 80, was entirely, or almost entirely, unconscious of any change in his heart. On cross-examination, however, he admitted that he was more easily puffed, and that on effort he experienced a little palpitation; beyond that, nothing. The heart showed no deviation from the normal except the typical irregularity and slight increase in frequency. (See Fig. 4.)

* Delivered before the Mid-Cheshire Division, June 15th, 1922.

CASE III.

In the third case the subjective symptoms were more definite. He was apparently a healthy man of 50. On May 19th he ran hard for a train—a distance of three-quarters of a mile. He caught it, but the shortness of breath and the palpitation caused by the extra effort did not pass off as he had expected. They persisted, and when I saw him on May 22nd he still complained of these symptoms and also of a peculiar "dithery and shaky feeling." On examining the heart I found the ventricular rate 140, many of the systoles failing to send a pulse to the wrist. There were no bruits and no increase in the cardiac dulness. Fibrillation had supervened in a heart which, up to that moment, had been for all practical purposes a sound heart with an ample reserve. (See Fig. 3.)

CASE IV.

The fourth example is that of a woman who had been under observation for years, suffering from mitral stenosis. Up to the present breakdown she has had, in spite of her valvular disease, good cardiac reserve, and has lived a useful and active life within her frankly recognized limitations. She will tell you that suddenly, naming the day and the hour, she became conscious of an irregular and rapid action—or she may describe it as a peculiar fluttering behind the breast bone. With this there were some precordial pain and a sense of shortness of breath. These symptoms increased and, as she was not treated, were followed by cyanosis, venous engorgement, and oedema, with distension of the abdomen and some abdominal pain, and an engorged and pulsating liver—all the signs of grave cardiac failure. On examination the action of the heart is found to be extremely rapid; the heart has become dilated, the typical presystolic murmur has disappeared, and the pulse is running, feeble, and irregular.

CASE V.

The last and fifth case is of a different type, but again one with which we are all only too familiar. I refer to the sudden onset of acute and overwhelming cardiac failure in a patient of middle age or of more advanced years. Such a man of, say, 60, in apparently good health, known to have a high blood pressure, awakes in the small hours in acute physical and mental distress. This is characterized by extreme dyspnoea and restlessness; his face is grey and pallid, he is bedewed with cold sweat, and his extremities are cold and clammy. There is no oedema and no engorgement of the liver. The heart is found to be beating tumultuously with extreme rapidity—the "delirium cordis" of the older writers. The radial pulse is irregular in force and frequency, and there are many small and almost imperceptible pulsations, in striking contrast to the apparently forceful action of the ventricles. He dies in a few hours of rapidly progressive cardiac failure chiefly affecting the left ventricle.

These instances are given as illustrations of the varied character of the clinical picture which may be presented by patients in whom auricular fibrillation has supervened. I hardly need to emphasize the fact that in each of these patients it was essential for correct treatment and prognosis that the nature of the sudden change in the heart should be clearly recognized.

What are the *characteristics by which it can be recognized?* They are largely embodied in the five cases related above.

Onset.—The onset is sudden. The transition from a normal rhythm to fibrillation is instantaneous and patients can often give a clear account of the commencement of the attack. Similarly in those patients in whom the fibrillation occurs in paroxysms the offset may be equally perceptible. On the other hand, fibrillation may not cause any sensations, pleasant or otherwise, until the reserve power of the heart is definitely encroached upon.

Irregularity.—The ventricular action is completely irregular and often frequent when the heart is free from the action of drugs; but the rate may vary within very wide limits, and when moderate the irregularity may not be very noticeable, though if the pulse be observed over a few minutes it is probable that the typical disorderly rhythm will manifest itself, and this will be more noticeable after exercise. It is also not unusual to find that the rate of the ventricular contraction is greater than the pulse rate, since some of the beats fail to be transmitted to the wrist.

Liability to Cardiac Failure.—It is the rapid and relatively inefficient action of the ventricles which increases the liability to cardiac failure, and if preceding the onset of fibrillation the myocardium is unsound, or if there is marked arterial hypertension, the onset of cardiac failure may be rapid and the distress great. It was this type of rapid and irregular ventricular action that was named "delirium cordis" by such writers as Balfour in his delightful book *The Senile Heart.*

Dilatation of the Heart.—When present dilatation supervenes as the result of the rapid and disorderly action and not as the cause, and if the fibrillation ceases the dilatation rapidly disappears. Similarly the heart shrinks when the

ventricular action is slowed by digitalis, even if the fibrillation persists.

These, then, are briefly the clinical characteristics.

ETIOLOGY.

The etiology is simple. There are two large groups in which most of the cases may be included:

1. *The rheumatic*—in which the most common form of valvular disease is mitral stenosis, and the age period covers from 20 to 50.

2. *The senile*—in which males predominate. In this must be included patients suffering from myocardial degeneration, arterio-sclerosis, and chronic interstitial nephritis.

The remaining cases are those in which the fibrillation originates in infections such as pneumonia and influenza, or results from sudden physical strain.

A point I should like to emphasize here is that fibrillation is not confined to any one type of cardiac lesion. It may develop in any heart, though it is unusual to find it in the absence of some definite pathological condition.

The essential nature of auricular fibrillation is a specific and fundamental change in the activity of the auricles. Normally the auricles contract in response to a stimulus which originates at the sino-auricular node, and this contraction is a co-ordinated movement eventuating in the expulsion of the auricular contents. This ceases when fibrillation begins. The fibrillating auricle thus remains in a state of continued diastole and on inspection its wall is seen to be tremulous. It is not inactive, but its activity is no longer normal.

I do not propose to discuss the cause for this peculiar condition, but the explanation which is at present generally accepted is that of "circus movement," ably described by Sir Thomas Lewis in his Oliver-Sharpey lectures for 1921.

Essential Character of Fibrillation.

Whatever theory of fibrillation is accepted there is at all events no doubt that all evidence of presystolic contraction of the auricle disappears. With fibrillation, for example, the typical presystolic bruit of mitral stenosis is no longer heard—a mitral diastolic may and often does persist, but even when it is audible up to the first sound it has lost its presystolic crescendo accentuation, and in a lengthened diastolic pause the bruit generally fades away before the subsequent first sound.

An analysis of the jugular records taken from the vein shows that the wave *a* in the phlebogram, so characteristic

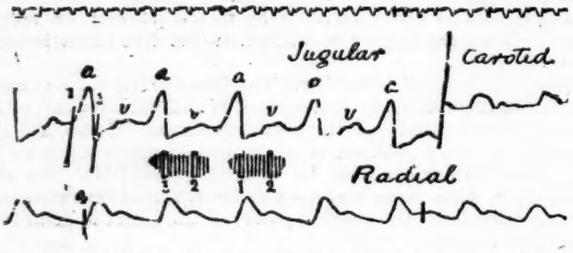

FIG. 1.—The jugular pulse is auricular in type; the wave *a* is well marked and occurs regularly. The murmurs are indicated on the tracing: presystolic, systolic, and early diastolic.

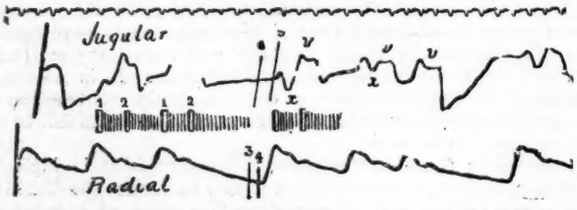

FIG. 2.—From same patient as Fig. 1 after the onset of fibrillation, showing an entire change in the character of both jugular and radial pulses. The rhythm is now disorderly. The wave *a* present in the previous tracing has disappeared. The murmurs are charted on the record. Note that the presystolic murmur has disappeared.

of systole of the right auricle, is no longer present. On the other hand, there may be, during diastole, peculiar small oscillations in the phlebogram.

Again, the electrocardiograph gives conclusive evidence of the cessation of normal activity in the auricle by the disappearance of the deflection *P*—a deflection due to auricular contraction and present in every normal record.

At the same time there are in the electrocardiograph numerous small deflections, *f f*, occurring at the rate of 450 to 500, which are caused by the peculiar electrical changes accompanying fibrillation, and are characteristic of the change.

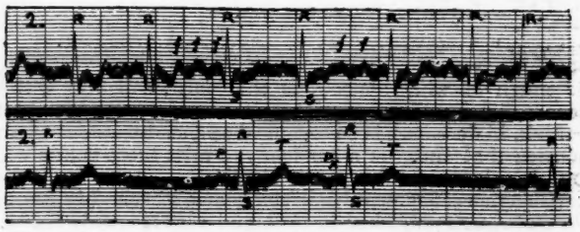

FIG. 3.—Electrocardiographic records showing result of quinidine sulphate in a patient suffering from auricular fibrillation. *Top record*, taken during fibrillation, shows irregular action of the ventricles, and the characteristic small deflections *f* due to the fibrillation. *Lower record* shows a normal rhythm after 0.4 gram of quinidine sulphate. The oscillations *f f* have disappeared. A premature beat arising in the auricle is shown at *Px*.

We have therefore this peculiar condition present in the auricles, and from this fibrillating mass impulses pour upon the ventricles through the normal channel—the auriculo-ventricular bundle. The ventricles respond as best they can

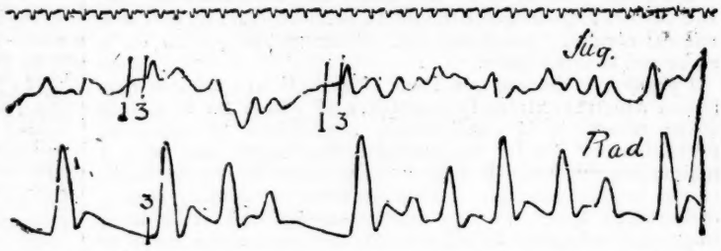

FIG. 4.—Simultaneous tracings of the jugular and radial pulses. Note the absence in the jugular tracing of any wave *a* preceding ventricular systole. From Case II. Typical disorderly rhythm.

to this irregular bombardment. The junctional tissues do, however, put some check on the number of stimuli passing through them, and the ventricular rate probably depends on the degree of block present. When this is marked the ventricular rate is infrequent, but when the impulses pass on to the ventricles with little hindrance the rate tends to become excessive. By judicious medication this can be controlled.

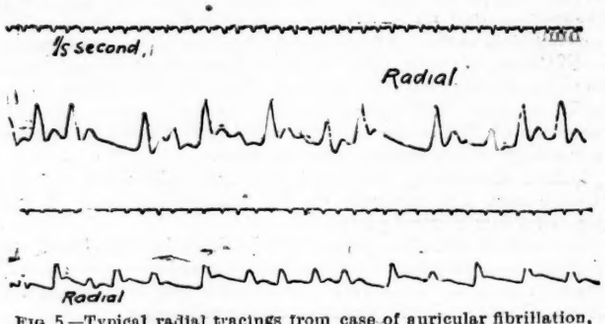

FIG. 5.—Typical radial tracings from case of auricular fibrillation, showing lack of correspondence between the length of diastole and the magnitude of the succeeding systole.

Whether the rate be frequent or the reverse the ventricular action is no longer regular—it is disorderly, a haphazard rabble of beats. Exercise increases both the cardiac frequency and coincidently the degree of the arrhythmia.

DIAGNOSIS.

The diagnosis of this condition during the ordinary clinical examination depends, therefore, upon a clear recognition of these essential characteristics which I have described. Careful cross-examination may elicit valuable information concerning the onset. The change in the character of the murmurs in the case of a patient suffering from mitral stenosis would of course be more than suggestive. But the most significant feature is the specific character of the arrhythmia, and in most instances palpation of the pulse should justify a positive diagnosis. The beats come hap-

hazard; the normal relation between the size of the beats and the antecedent pause no longer holds, and the rate of the pulse is no sure indication of that of the ventricles. The faster the heart the more obvious is the disordered character of the action. When the rate is within normal limits the arrhythmia is more subtle and is less arresting. Even then, however, sooner or later, with patience, the characteristic inconsequence of beats will appear, and suspicion passes into certainty.

Auricular fibrillation presents one other characteristic of great diagnostic value, and that is the specific response to the digitalis group—namely, a marked slowing of the ventricular rate, which is sometimes accompanied by the appearance of "coupled beats."

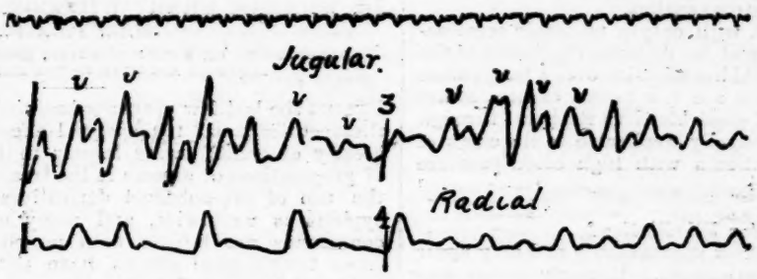

FIG. 6.—From Case 1 during a paroxysm. Irregularity complete; typical run of small pulsations at wrist. No auricular wave preceding the upstroke 3 in jugular record.

With these clinical characteristics clearly in mind it should be possible to arrive at a diagnosis, but there are certain forms of irregular action which may cause some little difficulty.

Sinus Arrhythmia.

Each respiratory movement may be associated with a decided arrhythmia, a quickening of the rate with inspiration and a lagging with expiration. When this is unduly exaggerated it may simulate fibrillation, but on holding the breath the heart becomes regular. A clear relationship to the respiratory phases is decisive. This form of irregularity is frequently present in adolescence and is of no moment.

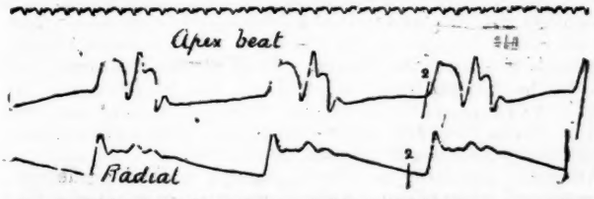

FIG. 7.—This record shows the coupled beat which often occurs when digitalis is pushed in cases of fibrillation of the auricle. It is an indication to stop the administration of digitalis. The second systole in each coupling is ectopic, and is just perceptible in the radial tracing.

Then, if *ectopic or premature beats* become numerous the arrhythmia simulates that of fibrillation. When occurring only occasionally or at regular intervals, giving rise to a premature or ineffectual beat every second, third, or fourth beat, it is obvious that there is a fundamental or dominant rhythm. Exercise, by increasing the rate, generally brings about a disappearance of this irregularity.

It is this form of arrhythmia which is that most likely to cause difficulty, and there is no doubt that when it is still further complicated by the appearance of "pulsus alternans" it may be impossible to make a confident diagnosis without a

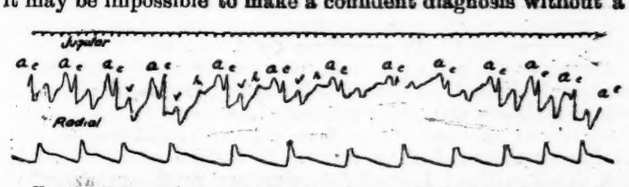

FIG. 8.—Polygraph record showing sinus arrhythmia. The rate is quickened with inspiration and slowed during expiration. *a* = wave due to systole of the auricle, *c* = record of carotid pulse.

polygraph or electrocardiograph record. Similarly cases of auricular flutter and cases of heart-block simulating fibrillation will probably require the employment of instruments of precision before a positive diagnosis can be made; but here again exercise and an increase of the ventricular rate tend to give a regular action.

TREATMENT.

When fibrillation is present the primary object of treatment is to reduce the ventricular contractions to a number within normal limits. In the most urgent cases of all, when the condition of the patient is so grave that it is obvious that unless the heart is slowed down at once death within a few hours is inevitable, strophanthin must then be administered intravenously in a dose varying from 0.5 to 1 mg. The result is sometimes as satisfactory as it is dramatic. Within an hour the condition of the patient is altered from one of acute distress to relative comfort: a liver obviously engorged and pulsating has shrunk materially; the cardiac thrust has moved in towards the nipple; the breathing is easier and the heart rate has fallen to a normal frequency.

In less urgent cases full dosage with the tincture of digitalis will probably be adequate: ʒj or ʒjss of the tincture as an initial dose, preceded by a purge, will generally give some relief within twenty-four hours; or the tincture may be prescribed in mxx doses three or four times in the twenty-four hours.

The digitalis group acts mainly by depressing the junctional tissues and hindering the passage of stimuli from the auricle to the ventricle. Digitalis should be continued until a specific response has been obtained; when the ventricular rate is down to 70 or 80 then the dose must be reduced until just sufficient is taken to maintain this speed. The most satisfactory response undoubtedly occurs in the rheumatic group. The danger is that the patient may cease to take digitalis when the symptoms have disappeared, or as it often happens, the doctor in charge discontinues the administration for fear of the so-called cumulative effects. The result is that within

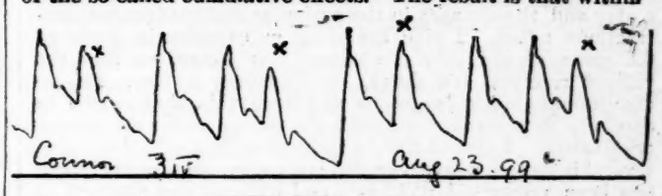

FIG. 9.—Premature beats.

a few weeks the ventricular rate mounts and the dyspnoea and other indications of cardiac distress return. Certain patients are dependent on the help to be obtained from digitalis, and must never entirely cease to take it in appropriate doses, for digitalis is essential to their well-being.

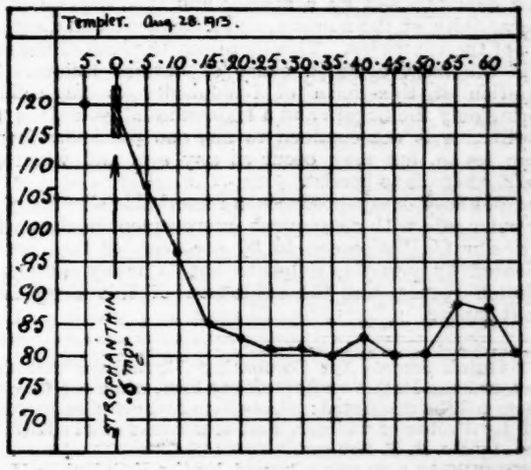

FIG. 10.—Shows the rapid drop in the heart rate after the injection of the strophanthin, from 120 to 81 in twenty-five minutes.

There are, of course, well-recognized indications for diminishing or stopping digitalis, such as: (1) a ventricular rate of 70 or under; (2) nausea or vomiting or diarrhoea; (3) a "coupled beat" which has appeared as the result of treatment with digitalis. This coupling is a specific response; it is an indication of saturation and that digitalis should be

stopped. The nausea and vomiting may be a true indication of toxic dosage or merely the outcome of the resentment of an engorged stomach to a nauseous drug. If there is reason to believe that the latter is the case, then the digitalis should be continued, but given well diluted or in a bland bismuth draught. When the tincture is badly tolerated the patient can sometimes take with comfort either Nativelle's digitalin granules or the tincture of strophanthus.

In the mildest cases of all, with only a moderate acceleration of the ventricular rate and no distress, regulation of the life and the exhibition of mild haematinics over a long period yield the best result. There are few better cardiac tonics than an adequate supply of good blood to the heart through the coronaries. This is especially applicable to the cases of fibrillation occurring in patients with high blood pressure and arterio-sclerosis.

Can we Stop Fibrillation?

Sometimes fibrillation ceases spontaneouly and may never recur; more often it is permanent. Recently much has been written about the action of quinidine sulphate and its power of terminating fibrillation, and it may be of interest to you to refer to this line of treatment.

My experience covers 17 cases in which I have given quinidine with the object of restoring a normal rhythm. In 6 of the 17 the treatment failed. Either the patient could not tolerate the drug or the cardiac failure was accentuated by the quinidine. In 11 of the 17 a normal rhythm was obtained, but two of these relapsed and persisted in their fibrillation. Ultimately in 9 of the 17 patients the normal rhythm was maintained. (See Fig. 3.) It is possible if not probable that as time goes on some of these 9 may fall from grace. On resumption of the normal rhythm some patients feel materially improved, others do not admit to much, if any, benefit.

In my opinion the treatment is not free from danger, and the action of the quinidine should be most carefully checked. My practice is to have an electrocardiogram taken twice a day and the changes in the auricular and ventricular contractions noted. I give the drug in capsules in doses of 0.2 gram spread over the twenty-four hours, so that the patient receives ten doses, or 2 grams, a day. Its indiscriminate use is dangerous, and it should only be given in carefully chosen cases and with the patient under continuous observation. I should like to emphasize this as I have met several instances where, through ignorance, quinidine sulphate has been prescribed recklessly and without any attempt at adequate supervision.

Summary.

Irregular action of the heart is not merely a matter of degree. The types differ fundamentally and their significance varies widely.

The most important group is that of fibrillation of the auricle, characterized by a specific and fundamental change in the activity of the auricles, and a frequent and disorderly action of the ventricles. This increases the load of the heart and is the most common cause of cardiac failure. The recognition of this form of irregularity is not difficult, requiring only the fingers and a trained intelligence.

Fibrillation is not confined to any one particular form of cardiac lesion, but may occur at any age, and when once established tends to persist.

The digitalis group produces a remarkable slowing of the ventricular rate with consequent improvement in the patient.

Auricular fibrillation can in 50 per cent. of the cases be terminated by quinidine sulphate, but in many patients the fibrillation recurs, and the exhibition of this drug is not without danger.

THE Dutch Society for Combating Alcoholism will hold a Congress at the Hague on September 11th, when the following subjects will be discussed: Alcoholism and criminality, introduced by Professor Bonger, and treatment of chronic alcoholism, by Dr. F. S. Meijers.

ACCORDING to a warning issued by the U.S. Public Health Service, leprosy is on the increase in the United States. Statistics show that there are 1,200 lepers at large in twenty-five States, contact with whom may further spread the disease. It also appears to be prevalent in Latin America, for Dr. R. F. Parra, physician-in-chief of the Agua de Dios Leprosarium, Colombia, reports that there are now 2,726 lepers segregated there. Chaulmoogra oil is being used in the treatment of 122 of these patients.

An Address
ON
ACUTE ARSENICAL POISONING.*

BY

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DURING the last few years our knowledge of the physiological, therapeutical, and toxicological effects of arsenic has been greatly extended, owing largely to the greatly increased use of preparations of arsenic in the treatment of disease. Thus the use of arsenobenzol derivatives for the treatment of syphilis is worldwide, and many other organic arsenical compounds are largely used in pharmacology. In some cases toxicological effects have followed the therapeutic use of these powerful remedies, and a study of these effects has not only enlarged our conceptions of the physiological and toxicological action of arsenic generally, but it has also stimulated the study of the quantitative tests for the efficiency of important organs of the body—for example, the liver.

Application of advances in pathological and chemical technique has enabled the toxicological effects of arsenic to be studied with more precision and detail, and thus has led to an extension of knowledge.

It will be my endeavour to call attention to the recent advances in our knowledge of the toxicology of acute arsenical poisoning, to give a summary of the salient points, and to illustrate them where possible by classical examples. Acute poisoning by white arsenic and similar inorganic compounds will be considered, and reference will be made to poisoning by arsenobenzol derivatives. Arseniuretted hydrogen will not be dealt with.

Arsenic is one of the commonest and oldest known poisons. It is stated to have been discovered in the third century. Its toxicology overshadows that of all other poisons in importance. Its poisonous properties are known to everyone and its preparations are easily accessible. It is almost tasteless, and can be introduced into food without fear of detection. It produces symptoms which closely simulate natural diseases, and it is not therefore surprising that as a homicidal poison it has easily held the first place for centuries.

Arsenical poisoning may be homicidal, suicidal, accidental, or produced when taken for the purpose of causing abortion or as a quack medicine. Out of 1,000 recorded cases from 1752 to 1911 collected by Witthaus the reasons for taking the poison were as follows:

Homicidal...	42.6 per cent.
Suicidal	23.0 ,,
Accidental	20.0 ,,
As an abortifacient	3.3 ,,
Due to quack medicine	0.4 ,,
Motive unknown	10.7 ,,

These figures, however, cannot express the true proportions, since suicidal and accidental cases are commonly not recorded. Homicidal poisoning must represent only a small minority of all acute arsenical cases. It is certain, however, that as a poison used for homicidal purposes the absolute number of cases far exceeds those of any other poison.

Preparations Used.

Arsenious oxide (As_4O_6) is the preparation most commonly used for criminal purposes; it is a white inodorous powder, almost tasteless, and slightly soluble in water; about 1/2 grain dissolves in an ounce of cold water, and 6 to 12 grains in a similar quantity of boiling water. It can be added to food and drink without fear of detection, and persons wishing to use it for criminal purposes appear to have no difficulty in obtaining it.

When sold to the public the regulations of the Poisons Acts should be complied with, and one of the conditions of sale of white arsenic is that it should be coloured by the admixture of at least one-sixteenth of its weight of soot or indigo. The evidence of recent notable trials shows that this rule is sometimes honoured in the breach rather than in the observance (Armstrong case).

An easily available source of white arsenic which is often forgotten is the chemical laboratory. The poison can be

* Given before the Medico-Legal Society, July 4th.

obtained in any quantity from wholesale firms for laboratory purposes without any restriction as regards its sale. Every chemical laboratory possesses large quantities of arsenic easily accessible to anyone visiting or using it.

Arsenious oxide is sold in combination with sodium hydrate or carbonate as weed killer. This may be a strong solution of sodium arsenite containing 14 to 40 per cent. of arsenious oxide. The liquid preparation is usually coloured by the addition of aniline dye such as fluorescine, though during the war it was sold uncoloured. The solid form of weed killer consists of a fine powder usually coloured and containing a high percentage of arsenic. An example of this is Eureka weed killer, which was mentioned in the Greenwood case. A sample was found by Mr. J. Webster to contain 60 per cent. of arsenious acid and to be coloured with phenolphthalein. The powder was very soluble in water and formed a pinkish-red solution which was decolorized by acids.

These preparations are most poisonous; not only may they give rise to accidental poisoning but there is reason to believe that they have been used for criminal purposes on many occasions. An instance of several cases of accidental poisoning due to liquid weed killer occurred in Sussex in 1919, when a sack of sugar absorbed a quantity of liquid weed killer from a leaky tin placed beside it during transit in a railway carriage. The consumption of the contaminated sugar gave rise to acute arsenical poisoning.

In the case Rex *v.* Bingham, 1911, three fatal cases of arsenical poisoning were the subject of inquiry; these were undoubtedly due to weed killer.

In May, 1921, an inquest was held on a woman named Hanktelow at Beckenham, where death was found to be due to acute arsenical poisoning. In this case the source of the arsenic appeared to be Eureka weed killer.

Liquid preparations known as "wood preservatives," similar in composition to weed killer, are used for destroying insects infesting wood. Since these are not coloured there is great risk of accidental poisoning from their use. The liquid may accidentally contaminate food or drink and give rise to acute arsenical poisoning. An instance has recently been brought to my notice where, after treatment of the interior of a large hut with arsenical wood preservative, the dust of the hut was found to contain a considerable percentage of arsenic, and the air of the interior was also contaminated with arsenic. Arsenic in combination with alkali is used largely in the manufacture of sheep dips, and these preparations have sometimes given rise to acute arsenical poisoning.

A solution of lead arsenate is commonly employed in fruit spraying, and cases of severe arsenical poisoning due to these preparations have been under my care.

There is no doubt that the common use of these commercial preparations of arsenic is a frequent cause of fatal arsenical poisoning, and the time appears to have come when the mode of sale of these preparations should be carefully considered with a view to the safeguarding of the public against risk of accidental poisoning and to prevent dangerous homicidal poisons being so easily accessible to persons with criminal intentions.

Other preparations of arsenic such as sodium arsenite, metallic arsenic, arsenic acid and sodium arsenate, copper arsenite (Scheele's green), a mixture of copper arsenite and copper acetate (Schweinfurth green, Paris green, emerald green), arsenious sulphide (orpiment or King's yellow), have given rise to acute poisoning, usually of an accidental or suicidal nature; and the medicinal preparations of arsenic must not be forgotten as causes of acute poisoning when taken in excessive doses.

SYMPTOMS OF ACUTE POISONING BY ARSENIC.

Arsenic is usually described as an irritant poison. It certainly is an irritant, but it does not kill by virtue of its irritant properties on the gastro-intestinal tract. Arsenic is a most powerful tissue poison, and it is to the toxic effect on the important organs of the body, especially the heart, kidneys, and liver, that a fatal result is due.

The importance of the toxic action of arsenic is too often lost sight of in the medico-legal inquiries concerning cases of acute arsenical poisoning, and attention is too much concentrated on the irritant effects of the poison. It is often assumed that the irritant symptoms of vomiting and diarrhoea are the chief cause of death owing to their exhausting effect on the body, whereas it is the toxic action of the poison on the heart and other organs which is usually responsible for the fatal issue. The vomiting and diarrhoea *per se* are rarely of themselves the cause of death, and indeed these symptoms can be controlled by medicinal treatment.

In his evidence in the Madeline Smith case, in 1857, that great toxicologist Dr. Robert Christison said, on being cross-examined as regards the large quantity of arsenic present in the stomach of the deceased: "The very fact of poison being found in the stomach at all in the case of arsenic shows that more has been administered than is necessary, as it is not what is found in the stomach that causes death but what disappears from the stomach." In other words, Dr. Christison considered that it was the toxic effect of the absorbed arsenic on the important organs of the body which caused death, not the local irritant effect on the stomach and intestines.

The symptoms of acute arsenical poisoning are very variable in their occurrence, and no hard and fast rule can be laid down as to precisely what symptoms will occur and the order of their occurrence. Thus the same toxic dose of arsenic may in one person produce vomiting first and diarrhoea afterwards, but in another person the reverse may obtain. An example of this has recently come to my notice. Then again some symptoms, such as burning in the throat, thirst, or cramp in the legs, may be prominent in some cases but entirely absent in others.

Criminal cases of arsenical poisoning commonly present symptoms which are due to a succession of doses, possibly each sublethal but poisonous. In such cases the symptoms of acute arsenical poisoning, such as would occur from one single dose of arsenic, may be masked by the appearance of symptoms due to the prolonged action of arsenic—that is, to those of subacute or chronic poisoning. Thus symptoms of arsenical neuritis, or of renal or liver disease, may be superimposed upon those of the acute gastro-intestinal symptoms.

When a single poisonous dose of arsenic is taken by the mouth (one or two grains or over) the interval before the appearance of symptoms is variable. Possibly some peculiar taste of a slightly metallic nature may be noticed, but this is frequently absent. Nausea will probably be the first symptom, and this may occur within a few minutes of taking the poison. The onset of symptoms is dependent on the state of the stomach at the time of taking the poison. If empty there will be little if any delay in the appearance of the symptoms. Much depends also on whether the arsenic is in solution or in the solid state; in the latter condition the onset of symptoms will be delayed. Then again, if the arsenic is in the solid form there will be more delay if the solid is insoluble than if it is soluble.

If the stomach contains food the onset of symptoms will be delayed and also if the poison is taken with food, or if food is taken within a few minutes of the poison. Examples of the variable occurrence of gastric symptoms are shown by the recent Armstrong case, where after a possible poisonous dose there was a delay of one and a half hours before the occurrence of nausea, and of three and three-quarter hours before the occurrence of vomiting, and of eight and a half to ten and a half hours before the occurrence of diarrhoea. In this case (Mr. Martin) the poison was no doubt taken in the solid form (arsenious oxide) with tea and scones and bread-and-butter. In a recent very interesting case published by Dr. St. George (BRITISH MEDICAL JOURNAL, February 5th, 1921) a patient at 8 p.m. took about 180 grains of white arsenic in mistake for magnesia; the poison was mixed with hot milk, and half an hour later porridge and milk were taken for supper. It was not until four hours after taking the poison (12 midnight) that vomiting occurred, and this was accompanied by burning pain in the epigastrium and diarrhoea. At 4 a.m. cardiac failure was shown by coldness, feeble thready pulse, and general collapse; cramps in the legs also occurred. Under medicinal treatment the vomiting and diarrhoea were controlled. At 10 a.m. suppression of urine occurred. The patient recovered from the immediate acute symptoms, but a severe multiple neuritis developed, and the patient died from this three and a half months later. This case is a good example of the action of arsenic, which is that of a protoplasmic poison, the irritant effects not being of themselves fatal.

A remarkable example was mentioned by Dr. Christison in his evidence in the Madeline Smith case, in which a girl took a large dose of arsenic at 11 a.m.; though showing signs of uneasiness, she made a pretty good dinner at 2 p.m. Death occurred in thirteen or fourteen hours after administration. This was a French case and very unusual.

A scientific worker in a factory where large quantities of arsenic were used, and where it was impossible to avoid the inhalation and swallowing of a certain amount of arsenic.

told me that sometimes at night, when the exposure to poison during the day had been great, he suffered from vomiting and diarrhoea—that is, there had been a delay of many hours before the onset of the symptoms.

When a poisonous dose is taken in solution on an empty stomach nausea is likely to occur within a few minutes, vomiting within an hour, and diarrhoea within a few hours. A burning pain in the epigastrium is a fairly constant early symptom associated with the nausea and vomiting. A burning pain in the throat has been described as a symptom. This is usually not marked in arsenical poisoning, and then is only caused by the congestion of the pharynx and oesophagus consequent on the vomiting. In a recent case (Black) burning of the throat was a prominent early symptom, occurring apparently before the vomiting and diarrhoea. Arsenic is not a corrosive poison, and no direct local effects are produced on the pharynx or oesophagus, so that it is difficult to explain an immediate burning sensation except by reflex action.

The vomit will at first contain food and mucus, and may later be darkened in colour owing to the exudation of blood from the gastric mucous membrane; afterwards it may be yellowish and slimy owing to the presence of bile and mucus. The diarrhoea may be severe and accompanied by a good deal of abdominal pain and tenderness. The pain is often of a colicky nature and followed by profuse evacuation. The stools are watery, and may contain minute particles of mucus and blood. In suspected cases the vomit and stools should always be carefully reserved for analysis. The tongue is furred in the early stages, and later may have a silvery appearance, the papillae showing through the fur.

In cases of continued doses, as in the Armstrong case, sordes may appear on the lips, as in a typhoid patient. Cramps in the legs are likely to occur when there is severe diarrhoea; where vomiting and diarrhoea are continuous, thirst may become marked owing to the draining from the body of fluid, the eyes sunken, and the face pinched. The appearance of the patient may resemble that seen in cholera, and the examination of the stools, both chemically and bacteriologically, may be necessary to establish the diagnosis.

Cardiac Symptoms.

A weak and rapid pulse is one of the early and most constant symptoms; it was a marked feature in the Black case and also in the Armstrong case (both Mr. Martin and Mrs. Armstrong). The tachycardia is accompanied by weakness, faintness, and a feeling of collapse. There is no doubt that arsenic has a direct toxic action on the cardiac muscle, and this effect is no doubt the cause of the early death in acute cases.

Hepatic Symptoms.

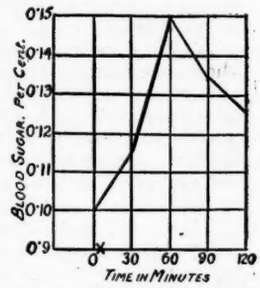
Arsenic is a direct liver poison, and a microscopical examination of the liver in fatal cases of acute arsenical poisoning shows very marked fatty degeneration. Dr. Spilsbury demonstrated this recently in the case of Mrs. Armstrong. One of the most important functions of the liver appears to be that of the protection of the body from circulating poisons. It is the first line of defence, and when the poison is taken by the mouth it is readily to be understood that since after absorption by the portal vein the poison first passes through the liver this organ receives the brunt of the attack and often is irreparably damaged in consequence. The effect on the liver is a degeneration of the cells and in consequence swelling, so that the bile capillaries become pressed upon and slight jaundice may occur. Jaundice is not a common symptom of acute poisoning by arsenious oxide, but it is likely to occur where there have been repeated attacks of poisoning extending over a few weeks. In the case of Mrs. Armstrong one of the nurses (Nurse Kinsey) described the appearance of the skin as being like that of a jaundice case, while the other nurse (Nurse Allen) said the skin was very dark and of a tawny colour.

There is no doubt that the hepatic function is diminished considerably as the result of the action of arsenic, and this accounts for the jaundiced appearance of the skin in protracted cases of arsenical poisoning.

In the Madeline Smith case (1857) Dr. Hugh Thomson, who saw the patient (L'Angelier) during life and who took part in the *post-mortem* examination, described the skin as being of "a distinctly jaundiced hue," both before and after death; in the joint *post-mortem* report of Dr. Thomson and Dr. James Stevens the skin is described as being of a tawny hue. Some discussion arose during the trial as to whether jaundice was due to arsenic, and in the evidence for the defence Dr. Maclagan stated that in arsenical poisoning there is no jaundice. The victim in the Madeline Smith case probably had three attacks of acute arsenical poisoning during the last five weeks of life—namely, on February 19th and 23rd and March 22nd, the last proving fatal within a few hours. It is now fully recognized that arsenic is a powerful liver poison and so much damage may result that a condition of extensive atrophy (acute yellow atrophy) may follow. The action of arsenobenzol compounds (salvarsan, etc.) on the liver is well known, and in all acute fatal cases where death occurs within two or three weeks of its administration marked fatty degeneration of the liver occurs. Dr. Spilsbury has found this change in several such cases.

It is interesting to note that when the arsenical poison is given into the general blood stream, as in the intravenous administration of arsenobenzol compounds, the liver still acts as the first line of defence against the poison, and in fatal cases the bulk of the poison is found in the liver.

As a consequence of the fatty degeneration of the liver jaundice may occur, and a very large number of cases of salvarsan jaundice have been described. The onset of this symptom is usually late—weeks or months after the administration. As the jaundice clears up usually a definite shrinkage in size of the liver is found, though there is often some swelling present at its onset.



Liver efficiency test. Case of post-galyl jaundice. X = 50 grams laevulose given.

Salvarsan jaundice has been found associated with a defective hepatic function, and in a case under my care at St. Mary's Hospital two months ago the laevulose test for hepatic function, carried out by Dr. Roche Lynch, gave a very marked reaction indicating hepatic deficiency (see chart). Salvarsan jaundice is a serious symptom and not infrequently fatal, the condition of the liver often, at necropsy, showing marked shrinkage due to atrophy following the previous fatty degeneration (acute yellow atrophy).

Renal Symptoms.

Arsenic is a powerful renal poison and acts on the kidney cells, causing fatty degeneration. Impairment of function of the kidney is shown by diminution or even suppression of excretion and the presence of albuminuria.

In the recent Black case albuminuria occurred during life, and fatty degeneration was found in the kidneys on microscopical examination after death. The kidneys also showed definite but not extensive arterio-sclerotic changes which must have been present before the onset of the arsenical poisoning. The action of the arsenic on the damaged kidneys so impaired their function as to be the direct cause of death.

In the Armstrong case albuminuria occurred during the acute illness of Mrs. Armstrong, and fatty degeneration of the kidneys was found by Dr. Spilsbury on microscopical examination. In 1920 a case of subacute arsenical poisoning due to arsenical fruit-spraying liquid was under my care; in this case persistent albuminuria with marked skin lesions occurred and death resulted after a long illness. Probably the lead present in the liquid accentuated the renal symptoms, but undoubtedly the marked albuminuria and other symptoms were mainly arsenical in origin.

Nervous System.

After a single poisonous dose of arsenic, unless this is large, nervous symptoms do not usually occur. Multiple neuritis may follow a single large dose. One instance of this has been described above. Another example came under my notice in Mesopotamia in 1916, where from accident a large quantity of drinking water became contaminated with sodium arsenite. A number of cases of acute arsenical poisoning resulted and in one a most severe arsenical neuritis followed.

In protracted acute arsenical poisoning due to repeated doses, multiple neuritis is a common symptom. It was marked in the case of Mrs. Armstrong, and in the Maybrick case some slight symptoms of neuritis occurred. The brain does not appear to be specially affected in acute arsenical poisoning, and usually the mental condition is unimpaired until a few hours before death.

As will be seen from the analyses of fatal cases, very little arsenic is found in the brain, and the cerebral symptoms in acute arsenical poisoning cannot be due to the direct action

of arsenic on the brain, but to the impairment of function of the other organs (liver, kidneys, and heart) and consequent indirect cerebral toxaemia.

Repeated Doses.

Where repeated doses of arsenic are given, as sometimes happens in criminal cases, symptoms of chronic arsenical poisoning (conjunctivitis, laryngitis, skin rashes and pigmentation—symptoms of multiple neuritis, etc.) may accompany the acute symptoms.

Fatal Dose.

A single dose of 2 grains of arsenious oxide has caused death in a healthy adult, and this is usually accepted as a possible fatal dose. It is common for much larger doses to be taken and recovery occur, owing, no doubt, to the rapid elimination of the poison by vomiting and diarrhoea. A given amount of arsenic if taken in solution and its administration spread over a short period is much more likely to prove fatal than if the whole amount is taken in one dose.

Fatal Period.

It is impossible to state this, since so many factors influence the time of death after a single fatal dose. Usually death occurs within three days, but in cases of repeated dosage death may not occur for many days. In one case after a large dose death occurred in twenty minutes; but in the case already mentioned after a dose estimated at 180 grains death did not occur for three and a half months.

Post-mortem Examination.

In cases where death has occurred some time previously careful search must be made for evidence of delayed putrefaction. This will be best shown by the condition of the internal organs. It is most marked in cases where there has been an illness prolonged over several days, the arsenic being widely distributed throughout the body; the drainage of the tissues consequent on the prolonged diarrhoea and vomiting also tends to delay putrefaction. In a case of illness where the diarrhoea is due to bacterial infection putrefaction will be accelerated, so that in this respect arsenical cases present a marked contrast.

Too much importance, however, must not be attached to delayed putrefaction, and in cases where a single dose only of arsenic has been taken and death has occurred quickly there may not be a marked delay. It depends on many factors—for example, the amount of arsenic distributed throughout the body, and the influence to which the body has been exposed after death, whether favourable or otherwise to putrefactive changes. The presence of inflammatory changes in the stomach and intestine should be carefully looked for, and especially the presence of petechial haemorrhages. It is important to remember that, as the result of putrefaction, these signs rapidly disappear after death, and it may be quite impossible to detect them when death has occurred many days previously. In a case of exhumation the absence of inflammatory signs in the stomach and intestines is not indicative of the absence of arsenic. The presence of any solid particles of arsenic or of a pigmented powder must be looked for. Where putrefaction is advanced marked yellow staining may be found in the stomach or intestines, due to the formation of arsenic sulphide.

Careful reservation of the organs for analysis and microscopical examination should be carried out. The stomach, the small intestine, the caecum with the ascending colon, and the remainder of the large intestine with the rectum should be separated by ligature and placed in separate jars with due precaution. The contents of these should be kept separate, since the amount of arsenic in each may give an indication of the time of administration of the fatal dose. The liver, kidneys, heart, spleen, and brain should be placed in separate jars. In addition, a portion of muscle, a piece of bone, some hair cut off close to the scalp, a portion of skin, and the nails should be separately reserved in appropriate vessels. Any fluid in the coffin in an exhumation case should be reserved. Also, any earth adherent to the coffin or around it should be reserved for analysis. At the time of the examination small portions of the liver, kidneys, and heart should be placed in normal saline containing 10 per cent. formalin for future microscopical examination.

Chemical Analysis.

Too much importance cannot be attached to the methods employed in the analysis of organs for arsenic in suspected poison cases. Only those methods should be used which are absolutely reliable and cannot give fallacious results.

As a qualitative test the Reinsch test is one of the most reliable. As a quantitative test where a weighable amount of arsenic is possible, a weighed portion of the organ is taken, the organic matter broken down by the usual method, and the arsenic precipitated as arsenious sulphide by treatment with sulphuretted hydrogen gas, the liquid being kept saturated with the gas for four days. The arsenious sulphide is filtered off, dried, freed from sulphur, and carefully weighed; its purity is confirmed by conversion into magnesium pyroarsenate, which is also weighed.

Where the quantities of arsenic present do not admit of weighing, a known amount of the organ is treated with nitric and sulphuric acids to oxidize the organic matter present. After evaporating off the acids the residue is submitted to the electrolytic Marsh-Berzelius test and the mirror obtained compared with the standard mirrors.

The above tests if carefully carried out are absolutely reliable. It is essential that all reagents should be free from arsenic, and control tests must be constantly done to ensure this. In toxicological work no test should be used which can possibly give fallacious results; for this reason I do not favour the use of the Gutzeit test, though it has been much used in pharmacological work.

The presence of traces of sulphide from putrefaction or of impurities in the chemicals used may lead to error. For the same reason the electrolytic test is to be preferred to the ordinary Marsh-Berzelius test.

It is particularly necessary that most accurate methods be used where only traces of arsenic are present in the material for examination, since the slight mirrors yielded in such cases might be produced by small traces of impurities in the chemicals used.

In toxicological work reliance should not be placed on a single method of testing—thus, if arsenic is found by the Marsh test, its presence should be confirmed by the Reinsch and other tests.

There have been instances in which arsenic has been found in the process of analysis of viscera, and the origin of the arsenic has been traced to the impure chemicals used. A very interesting example of such a mistaken diagnosis came to my notice in 1909.

M. F., a man aged 50, who lived in a large country house in the Midlands, and who was supposed not to have been on the best of terms with his wife, suffered from severe vomiting accompanied by some diarrhoea. The illness had lasted for four weeks, and during this time the wife was frequently in and out of the sick-room.

The patient had been addicted to alcohol for years, and even during his last illness took a fair amount of whisky, though not in great excess. The patient died, but before his death some suspicion rested on the wife, and in consequence the urine was collected and sent to a local pharmacist for analysis. The manner of collection of the urine was open to suspicion, and no especial care was taken as regards the cleanliness of the bottle or cork used. The urine was analysed by the Marsh test and a very large mirror of arsenic resulted. This mirror was much larger than would have been given by urine passed by a patient who had recently received a fatal dose of arsenic, and this of itself aroused my suspicions as to the danger of drawing any conclusions whatever from this piece of evidence. The presence of arsenic in the urine had not been confirmed by the Reinsch or other tests. The death of the patient resulted within two days of the collection of the sample of urine.

A *post-mortem* examination was made, and the organs were examined and analysed by me. The liver was greatly increased in size and of canary-yellow colour; microscopical examination showed that the cells were engorged with fat. No trace of arsenic was present in the liver or any of the organs of the body. The liver was in a state of very marked fatty cirrhosis due to alcohol, a condition commonly associated with most severe vomiting and a certain amount of looseness of the bowels. It is also commonly associated with symptoms of peripheral neuritis due to alcohol, and a fatal termination is by no means uncommon. The clinical picture is almost exactly like that of arsenical poisoning, and in the case of M. F., where arsenic was said to have been found in the urine in large quantity, it was not surprising that a confident diagnosis had been made of acute arsenical poisoning, and that a sensational second Maybrick case was supposed to have arisen.

The fact that all the organs of the body were free from arsenic at the time of death, even though submitted to the delicate Marsh-Berzelius test, showed conclusively that the urine passed two days before death must have been free from arsenic, since had it contained arsenic as suggested considerable amounts must have been present in the liver and other organs.

It was clear that the arsenical mirror obtained on the analysis of the urine had come from some extraneous source, either from a dirty bottle or from impurities in the chemicals used in the analysis. The facts of the case were carefully explained to the jury, and a verdict of death from cirrhosis of the liver was found.

This case was an excellent illustration of the ease with which a mistaken diagnosis of arsenical poisoning may be

made. It also emphasizes the necessity of taking the utmost care in analysis and collection of specimens, and the importance of relying neither on one test nor on the results of analysis of one organ.

In a fatal case of arsenical poisoning arsenic should be found in the liver, spleen, kidneys, and other organs of the body, in addition to being present in the gastro-intestinal tract.

Elimination of Arsenic.

In acute arsenical poisoning the vomit and faeces will contain arsenic in amount depending on the quantity of the poison taken. The absorbed arsenic will be found in the blood and serous exudations.

Thus in one case the blood collected one hour after the injection of 0.6 gram of salvarsan contained 0.5 mg. and in another 0.33 mg. per 100 c.cm. The blood will contain traces of arsenic as long as the poison is present in the liver and organs; in fatal cases the blood and serous exudations contain appreciable amounts of arsenic. The urine after the administration of arsenic will contain arsenic for several days. After medicinal dosage, usually at the end of fourteen days, arsenic cannot be detected in the urine, but I have found definite evidence of arsenic twenty-one days after the administration of a single dose of salvarsan (0.5 gram). Where repeated doses of an arsenobenzol preparation have been given arsenic may probably be found in the urine for several weeks or even months.

Dr. Chalmers Watson recorded a case in the *Lancet*, April 22nd, 1922, where traces of arsenic were found in the urine and faeces fifteen months after a course of ten injections of novarsenobenzol, and Dr. D. R. C. Shepherd recorded a case in the *Lancet*, December 17th, 1921, where arsenic was found in the urine 111 days after a course of seven injections of neo-salvarsan. In the beer poisoning epidemic arsenic was found in the urine by Dr. Dixon Mann in one instance fifty-nine days after admission of the patient to hospital.

It is probable that during the prolonged administration of arsenic a certain amount becomes deposited in the skin, hair, and nails, and that this is gradually reabsorbed, being excreted by the urine and faeces; hence the poison may be found for long periods after the administration. Usually in acute arsenical poisoning after a single dose arsenic ceases to be found in the urine and faeces after about three weeks. The late Dr. Dixon Mann, who had a very extensive experience of the toxicology of arsenic, wrote in his textbook:

"In cases of acute arsenical poisoning it is very exceptional to find arsenic in the urine longer than a week or ten days after the administration of the poison; and in those fatal cases in which the patient survived more than ten days arsenic has rarely been found in the tissues."

I believe from my own experience that this still holds true in the majority of cases of acute arsenical poisoning arising from the taking of a single dose by the mouth.

Arsenic has a strong affinity for the keratin tissues, and hence it is found in the hair, nails, and skin, especially in cases of prolonged administration. In the hair it is deposited in proximal portions which represent the growth during the period absorbed arsenic is in the body. The sweat and sebaceous secretion during this period will contain arsenic, and as the whole length of the hair comes in contact with these secretions the limitation of arsenic to the proximal portions of the hair is relative not absolute. The analyses in the Armstrong case illustrated this point. In the Seddon case Sir Edward Marshall Hall quite rightly raised the question of why arsenic should be present in the distal portions of the hair if the case was one of acute poisoning as suggested. In this case the distal hair had been lying in blood-stained fluid in the coffin, and as this fluid contained definite traces of arsenic I gave it as my opinion that the arsenic in the distal portions of the hair had been absorbed from the fluid in the coffin. The accuracy of this statement was confirmed by soaking some arsenic-free hair in the blood-stained arsenical fluid for twenty-four hours and then thoroughly washing it in water, alcohol, and ether, and submitting it to analysis. It was found that an appreciable amount of arsenic had been absorbed by the hair, thus explaining the presence of arsenic in the distal portion of the hair from the deceased.

Arsenic may be found in the sweat, saliva, and bronchial secretion in acute arsenical poisoning, and it has also been found in the milk of lactating women. In two cases where salvarsan was given to patients during lactation I found arsenic to be absent in samples of milk taken from five and a half to seventy-two hours after the administration, so that the benefit to the child resulting from the administration of salvarsan to the mother cannot be due to the presence of arsenic in the milk but to other causes.

TABLE I.

Patient E. M. Has taken liq. arsenicalis ♏ 3 t.d.s. from November 28th to December 25th; ♏ 5 t.d.s. from December 25th to January 1st inclusive; ♏ 7 t.d.s. from January 4th to January 8th inclusive. All specimens were collected from 8 a.m. to 8 a.m.

Specimen.	Urine.		Faeces.	
	Amount of As per 100 c.cm. of Urine.	Total As in 24 hours Specimen.	Amount per 100 grams.	Total Amount in 24 hours.
	Mg.	Mg.		Mg.
January 5–6 ...	0.095	0.95	B.N.O.	—
„ 6–7 ...	0.48	4.01	*1.0 mg.	0.5
„ 7–8 ...	0.21	2.96	B.N.O.	—
„ 8–9 ...	0.09	1.1	*0.9 mg.	0.45
„ 9–10 ...	0.10	0.58	0.30 „	0.46
„ 10–11 ...	0.04	0.32	B.N.O.	—
„ 11–12 ...	0.03	0.26	0.4 mg.	2.6
„ 12–13 ...	0.04	0.31	*0.05 „	0.025
„ 13–14 ...	0.02	0.24	0.045 mg.	0.09
„ 14–15 ...	0.01	0.10	Trace too small to estimate	
„ 15–16 ...	0.001	0.01		
„ 16–17 ...	nil	nil		

* The total amount of faeces was about 50 grams.
B.N.O. = Bowels not opened—no specimen.

TABLE II.

Patient H. H. Has taken liq. arsenicalis ♏ 3 t.d.s. from January 4th to 10th inclusive.

Specimen.	Urine.		Faeces.	
	Amount of As per 100 c.cm. of Urine.	Total As in 24 hours Specimen.	Amount per 100 grams.	Total Amount in 24 hours.
	Mg.	Mg.		Mg.
January 7–8 ...	0.06	0.4	B.N.O.	—
„ 8–9 ...	0.05	0.26	0.08 mg.	0.55
„ 9–10 ...	0.14	0.83	0.09 „	0.38
„ 10–11 ...	0.07	0.69	B.N.O.	—
„ 11–12 ...	0.03	0.17	0.069 mg.	0.69
„ 12–13 ...	0.035	0.22	B.N.O.	—
„ 13–14 ...	0.04	0.24	0.03 mg.	0.08
„ 14–15 ...	0.003	0.022	0.016 „	0.025
„ 15–16 ...	0.002	0.014	0.003 „	0.013
„ 16–17 ...	Less than 0.001	0.005	Not estimated.	

The accompanying tables of cases investigated personally illustrate the excretion of arsenic by the urine and faeces.

TABLE III.—*Excretion of Arsenic.*

Case 1.—P. L. June 2nd, 1914; 0.6 gram salvarsan given.

	Milligrams of arsenic (As_4O_6) per 100 grams.	
	Urine.	Faeces.
June 3rd	1.0 ...	1.4
June 5th	1.0 ...	2.5
June 7th	0.17 ...	1.7
June 9th	0.17 ...	—
June 10th	0.07 ...	—

TABLE IV.—*Excretion of Arsenic.*

Case 2.—H. October 12th, 1914; 0.5 gram salvarsan given.

No. of days after salvarsan.	Mg. of As_4O_6 in 100 c.cm. urine.
4	0.3
7	0.3
10	0.15
13	0.03

TABLE V.—*Excretion of Arsenic.*

Case 4.—October 29th, 1914; 0.5 gram salvarsan given.

No. of days after salvarsan.	Mg. of As_4O_6 in 100 c.cm. urine.
4	0.4
7	0.4
10	0.2
13	0.1
16	0.03
21	0.025

TABLE VI.—*Excretion of Arsenic.*

Case 6.—F. October 12th, 1912; 0.5 gram salvarsan given.

No. of days after salvarsan.	Mg. of As_4O_6 in 100 c.cm. urine.
2	1.33
4	0.4
7	0.16
10	0.11
13	0.025

Distribution of Arsenic in the Body in Fatal Cases.

This is well illustrated by the accompanying tables (VII to XIII). No rule can be laid down for the exact proportion of arsenic found in the various organs, since this will depend on the mode of administration, whether in one or repeated doses, on the time that has elapsed since the last dose, and on the state of health of the patient at the time of administration. The distribution of arsenic along the alimentary canal is of great importance because it gives a definite indication of the time at which the last dose was administered.

The routine examination of the alimentary tract by *x* rays after an opaque meal has given us definite knowledge of the rate of passage of the gastro-intestinal contents. Thus after twenty-four hours the bulk of the arsenic will have passed through the gastro-intestinal tract, as illustrated by the three Bingham cases. In the Armstrong case the large amount of arsenic in the caecum showed that a poisonous dose had been taken within twenty-four hours of death.

The liver, as has already been mentioned, rapidly absorbs arsenic, and usually considerable amounts are found in it, as is shown by the Armstrong and three Bingham analyses. In the Seddon case the amount was relatively small, while the amount in the muscles was high, probably owing to there having been a break in the repeated dosage. The large amount found in the intestines showed that a dose had been given within twenty-four hours of death.

Arsenic is usually found widely distributed through all the organs. The brain, however, contains only very small amounts, and I have found this to hold good, not only for poisoning by inorganic arsenic, but also for the organic arsenobenzol compounds. Stevenson and Dixon Mann had a like experience. This explains the absence of cerebral symptoms in acute poisoning by inorganic arsenic, and also shows that the cerebral symptoms in acute salvarsan poisoning are due to autointoxication and not to the direct action of arsenic on the brain. In acute arsenical poisoning very little arsenic is found in the bone, as illustrated by the Seddon and Armstrong cases.

TABLE VII.—*Distribution of Arsenic.*

Maybrick Case.

	Grains.	Milligrams.
Stomach	nil	nil
Intestines	1/11	6
Kidneys	trace	trace
Liver	0.3	21
Total	43/100	27

TABLE VIII.—*Distribution of Arsenic.*

Rex *v.* Bingham. *Re* Margaret Bingham (deceased). Death in three or four days from onset.

Stomach	1/250 grain
Liver	1.1 grain
Kidneys	1/130 grain
Spleen	trace

TABLE IX.—*Distribution of Arsenic.*

Rex *v.* Bingham. *Re* James Bingham (deceased). Onset August 12th, 1911, 3 p.m.; death August 15th, 1911, evening.

Stomach	minute traces
Liver	1/2 grain
Kidneys	1/95 grain
Spleen	1/600 grain

TABLE X.—*Distribution of Arsenic.*

Rex *v.* Bingham. *Re* William Hodgson Bingham (deceased). Onset January 22nd; death January 24th, early morning. Duration 23½ hours, about.

Stomach	1/12 grain
Small intestine	1/40 grain
Liver	1 grain
Kidneys	1/250 grain
Spleen	1/500 grain

TABLE XI.—*Distribution of Arsenic.*

Seddon Case.

	Grains.	Milligrams.
Stomach	0.11	7.30
Intestine	0.63	41.00
Liver	0.17	11.13
Kidneys	0.03	1.91
Spleen	0.007	0.44
Lungs	0.014	0.94
Heart	0.012	0.80
Brain	0.005	0.33
Blood (fluid from chest)	0.006	0.38
Bone	trace	trace
Nails	0.002	0.14
Skin (0.18 mg. per 100 grams)		
Muscle	1.03	67.20
Hair—proximal (3 mg. per 100 grams)		
Total	2.01	131.57

TABLE XII.—*Distribution of Arsenic.*

Rex *v.* Greenwood. *Re* Mrs. Greenwood (deceased).

	Grains.	Milligrams.
Stomach	0.009	0.6
Small intestine	0.067	4.33
Large intestine	0.008	0.55
Rectum	0.006	0.40
Liver	0.131	8.5
Spleen	0.006	0.4
Kidneys	0.019	1.21
Uterus	0.012	0.75
Heart	0.004	0.27
Lungs	0.012	0.79
Oesophagus	0.003	0.21
Brain	0.001	0.09
Total	0.28	18.07

TABLE XIII.—*Distribution of Arsenic.*

Rex *v.* Armstrong. *Re* Mrs. Armstrong, deceased.

	Milligrams.
Stomach	2.5
Stomach contents	2.0
Jejunum and contents	1.6
Ileum and contents	9.1
Caecum, ascending colon, and contents	37.6
Liver	138.0
Spleen	1.0
Kidneys	13.2
Left lung	0.5
Heart	0.6
Fluid from pleural cavities	0.9
Portion of brain (14 oz.)	0.1
Bone from left femur (4 oz.)	0.01
Skin from left thigh (3¼ oz.)	0.25
Muscle, back of left thigh (3½ oz.)	0.21
Hair from head (3¾ oz.)	0.54
Finger-nails	0.06
Toe-nails	0.03
Total	208.2

Poisoning by Arsenobenzol Derivatives.

This subject has been dealt with by me in a paper published in the BRITISH MEDICAL JOURNAL, April 1st, 1916. The interest attaching to cases of acute poisoning by salvarsan and allied compounds is that here, instead of gastro-intestinal symptoms occupying the prominent position, it is the poisonous effects of the arsenical compound on the organs of the body which produce the fatal symptoms. The liver bears the brunt of the attack and is the organ to suffer most damage. In fatal acute cases marked fatty degeneration is found in the liver, and the kidneys and heart muscle also commonly show this change.

The symptoms of acute salvarsan poisoning exactly simulate those of icterus gravis, and they are in my opinion due to auto-intoxication from defective liver function consequent on the action of the poison on the liver cells.

Very extensive damage and impairment of function is necessary for fatal auto-intoxication to be produced, but these cases do occur, and the risk from salvarsan administration should always be borne in mind. Even when the poisonous effect of salvarsan is not so massive, yet in many cases the liver suffers from the effect of repeated doses, and this is proved conclusively by the frequent occurrence of jaundice due to liver damage. This jaundice may occur weeks or months after salvarsan administration and may be most serious.

I am of opinion that the toxic action of salvarsan compounds on the liver is not sufficiently borne in mind in the very extensive use of this drug at the present day. Professor Maclean has suggested that liver damage is less likely to follow salvarsan administration if the liver cells have stored in them a certain amount of glycogen, and he has recommended that danger may be avoided by taking glucose shortly before the drug is given. This precaution is undoubtedly of value, and it has been emphasized by the use of a drug having like effects on the liver—namely, chloroform in its production of delayed chloroform poisoning after anaesthesia.

I wish to express my sincere thanks to Mr. J. Webster and Dr. Roche Lynch for valuable and much appreciated help in the work connected with this paper.

THE BLOOD SERUM IN PERNICIOUS ANAEMIA.

WITH NOTES ON THE NATURE OF THE DISEASE AND ITS TREATMENT.

A Preliminary Note.

BY

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Two years and a half ago, when making some observations on the phosphorus content of the corpuscles, clot, serum, and plasma of pernicious and other anaemias, I noticed that the colour of the plasma or serum of pernicious anaemia differed from that seen in the plasma or serum of any other anaemia or of normal blood. Since making the observation I have used it regularly in the diagnosis of pernicious anaemia and have found it a most useful and reliable, if not a pathognomonic, test of this anaemia.

By pernicious anaemia I mean a severe anaemia of unknown cause with high colour index, almost always above normal; urobilinuria; a tendency to megaloblast formation, and leucopenia; absence or great scarcity of blood plates (as seen on smears); and, judging from observations which are recorded in this paper, serum and plasma with special characters.

The serum in pernicious anaemia is always of a definite yellow colour, varying in tint from that of a cowslip to the deeper buttercup yellow of Canada balsam, whilst the serum of all other anaemias is much paler, and resembles straw-coloured water. The yellow colour is so distinct that it can be recognized in the serum or plasma if only two or three drops of blood are drawn into, and half fill, a small bulb made of thin glass with inlet and outlet of a narrow bore which can be closed hermetically by sealing-wax. Care must be taken not to heat the glass bulb and blood with the wax, for this would tend to haemolyse the blood; it is for this reason that sealing the ends of the bulb with heat is risky. For the past two years I have regularly carried these glass bulbs about with my blood slides, and used one in each case of anaemia examined. The blood runs freely into the small bulb from a needle puncture (when it is held lower than the blood drop on the finger), and when the ends of the bulb are sealed I stand it upright, or if taken at a patient's house I carry it upright in a small box in a waistcoat pocket until serum and clot separate. The colour of the serum is then seen, and, judging from a score or more of cases of pernicious anaemia and twice the number of other anaemias—Banti's disease, the leukaemias, secondary anaemia from any cause, purpura haemorrhagica—a diagnosis of pernicious anaemia from any other anaemia can be made. I have not applied the test to the anaemia of intestinal parasites which simulates pernicious anaemia, as I have never had any case of the condition under my care. A very important point is that serum from cases of severe secondary anaemia is pale straw colour, not yellow, in all the cases I have tried, whether due to septic infection, haemorrhage, or concealed malignant disease, which all have a high colour index (though not above 0.9) and a microscopic red blood cell appearance simulating pernicious anaemia but with leucocytosis. The blood in these severe secondary anaemias is specially referred to in the diagnosis of pernicious anaemia by Gulland and Goodall.[1]

a *b*

a, Glass bulb; *b*, with clot and serum.

This serum bulb test is very simple and has been a most useful aid to me many times in the diagnosis of the type of anaemia under investigation. In its average appearance I can tell from the serum alone, and without the estimation of the colour index or an examination of the blood film, whether I am dealing with a case of pernicious anaemia; but, of course, I always make and examine a blood smear, and wherever possible estimate the colour index as well. On some occasions I have had my clinical opinion of a case confirmed or altered on my way home in a train by the colour of the serum which has separated from the clot.

There is no question of any pink colour in the deeper coloured yellow serum—nothing whatever to suggest the presence of any trace of haemoglobin or haemolysis; nor is it of a bile pigment tint.

In taking larger amounts of blood from a vein haemolysis is liable to occur in health or disease if there is any trace of alcohol or distilled water in the syringe or needle. This is avoided by drawing 0.5 c.cm. of sterile 5 per cent. sodium citrate solution through the sterilized needle into the sterilized syringe, and withdrawing the piston to its full extent, thus rinsing the barrel of the syringe with the citrate solution, which is then expelled from the syringe. The needle is then put into the vein, and blood withdrawn. Finally, the blood is expelled gently into a sterile test tube, which is handled very gently and laid down in a sloping position to facilitate separation of clot and serum. The serum is pipetted away from clot without disturbing red corpuscles and then well spun in a centrifuge.

Every precaution is taken to avoid haemolysis. Some of my specimens were taken with dry Wassermann outfit needles direct into a dry sterile test tube without any syringe; some were taken with an oiled syringe by Dr. Loveday, who has been director of our clinical laboratory for many years, and is thoroughly experienced in the dangers of haemolysis and the methods of avoiding it.

At first I could find no reference to the colour of the serum in pernicious anaemia in textbooks of medicine and pathology or monographs on blood diseases. There is no mention of it in Hunter's monograph, in French's full article on pernicious anaemia in Allbutt's *System of Medicine*, or in Gulland and Goodall's book on the blood. In the last named work a suggestion that the increased haemoglobin index may be accounted for by the presence of haemoglobin in the serum is mentioned, but no evidence is advanced in support of it.

In the section by Lazarus (p. 20) on the clinical methods of blood investigation in *Die Anaemie* (Ehrlich, 1909) there is no reference to the colour of the serum. The only mention of it that I have been able to find is in Panton's *Clinical Pathology*, where it is said:

> "The bile colour of some serums is more closely simulated by the greenish-yellow pigment present in the serum of nearly all cases of pernicious anaemia. A certain percentage of these cases are, in addition, actually jaundiced."

In none of my cases of pernicious anaemia has the serum had a greenish tint.

Cause of the Colour of the Serum.

A larger amount of serum than that obtained in the bulbs is necessary to make any observations on the cause of the colour; for this purpose 5 c.cm. of blood or more are withdrawn from a vein in the arm with the precautions already referred to. The colour of the blood serum and plasma in pernicious anaemia calls to mind the striking yellow colour of the fat in the body, and the question of any possible connexion between the two and of the colouring matter being a lipochrome naturally arises. There is also the possibility of the presence of some bile pigment in the serum even in cases in which there was no real jaundice. I therefore examined the serum with the spectroscope—using a simple pocket or straight vision instrument—and immediately saw two very distinct absorption bands in the position of those of oxyhaemoglobin, and a much less distinct narrow third band farther to the right in the green in some specimens. These absorption bands appeared in all the specimens of pernicious anaemia serum or plasma examined except the very pale ones. This difference may be due possibly to the small quantity used, but possibly, as I believe, to there being more than one form of the disease. In the deeper coloured serum the bands are very distinct when the depth of fluid is only one-third of an inch and the shadows are about the same intensity as those of oxyhaemoglobin in 0.01 per cent. solution as depicted in Starling's *Textbook of Physiology*. I never saw any bands to the left of the D line in the red. In normal serum and

plasma, with their paler colour, I found the same absorption bands, though generally less distinct.

No modern work of reference that I know of has any mention of the presence of oxyhaemoglobin in normal serum. MacMunn and Thudichum refer to it and attribute the third band in the green to "lutein," which is probably a lipochrome.

Spectroscopic Observations.

With the help of Mr. Ernest Jones, M.Sc., M.B., my house-physician in 1920, the observations with the pocket spectroscope were checked with a laboratory instrument with which we could measure the wave-lengths of the definite absorption bands. In all the cases examined these were identical with the absorption bands of oxyhaemoglobin—namely:

The band near	...	...	D 575 to 585
The band near	...	...	E 530 to 550
D line – 590	...	...	E line 530.

There was not the slightest indication of any absorption band in the red.

No absorption bands were seen in any other form of anaemia—Banti's disease; purpura haemorrhagica; septic anaemia; secondary anaemia from haemorrhage, malignant disease, or any other cause; the leukaemias—and, especially, I repeat, as a very useful point of differential diagnosis, that they were not present in those forms of anaemia, previously referred to, which simulate by their high colour index (for a secondary anaemia) and by their microscopic blood picture pernicious anaemia. The yellowness of the serum, which contained enough oxyhaemoglobin to give its characteristic absorption bands, was striking: there was no trace of pink tint in it.

Haemoglobin, in the small quantity seen microscopically in a solitary blood corpuscle, is yellowish. Many such yellow corpuscles together give the normal pink blood colour, but I have been unable to find any statement in textbooks of physiology or works on the blood that haemoglobin is ever yellowish in solution. I have diluted normal blood with water so much that I could see no colour of any kind in the fluid, but only in the meniscus at the top of a small test tube, and this was pink. The question as to whether haemoglobin in the serum of pernicious anaemia which was yellow existed in some new combination or solution then arose, but I came to the conclusion that the deeper yellow shades of the serum of pernicious anaemia are produced by a weak pink solution of haemoglobin strengthening a lighter yellow pigment, possibly that which colours all the tissues of the body, especially the fat. This is seen by examining a specimen of the serum with the naked eye in the dark by artificial light. The dominant yellow colour is then less visible, whilst the haemoglobin is seen faintly pink, like weak laked blood, and not in the least brown.

The Nature of the Yellow Pigment.

It is difficult to carry out accurate chemical investigations with the small amount of serum which can be obtained from a case of pernicious anaemia, but Mr. Jones applied standard tests to some cases. He found that the yellow colouring matter of the serum was not extracted by ether. It remained after hydrolysis with alcoholic potash and subsequent precipitation of fatty acids by hydrochloric acid.

These two results suggest that the colouring matter is not a lipochrome. It is precipitated by reagents which precipitate proteins. This observation of Mr. Jones is interesting in view of the fact that a protein ricin when injected into the bone marrow produces blood appearances like those of pernicious anaemia. The identification of the pigment which colours the fat and other tissues might give a useful clue to the causation of the disease.

I have been unable to find any reference in recent English literature or textbooks to the spectroscopic examination of the blood serum of pernicious anaemia, and consequently of the absorption bands found therein. The classical work on the *Spectroscope in Medicine*, by MacMunn (1880), and *A Manual of Chemical Physiology*, by Thudichum (1872), though valuable and interesting, are out of date, especially in the nomenclature of the haemoglobin derivatives. I accordingly wrote to Sir Archibald Garrod, with whom I had previously had some correspondence about the spectroscopic appearance of the blood in enterogenous cyanosis. He kindly directed my attention to some work by Schumm in the *Zeitschrift für physiologische Chemie*, 1916, vol. 97. This observer recorded in this and previous volumes of the same journal his observations on haematin as a pathological constituent of the blood in certain diseases, including pernicious anaemia. He gives references to similar observations by Schottmüller in the *Münchener medizinische Wochenschrift*, 1914, No. 5, and by Hijmans van den Bergh and Snapper in the *Berliner klinische Wochenschrift*, 1915, No. 42. Schumm worked with a grating spectroscope and took photographic records of the spectra.

All these observers pay a great deal of attention to haematin as the chief spectroscopic feature of the serum of the various diseases, including pernicious anaemia, investigated by them, and say very little about the presence of haemoglobin, and, as far as I have seen, nothing about the colour of the serum. Schumm does refer to the brownish colour of any solution of haematin. After getting as far as this I was introduced by letter to Professor A. A. Hijmans van den Bergh of Utrecht by Sir Archibald Garrod, and he kindly offered to examine a specimen of the serum which I obtained from my patients. I sent him one, and received the following comments in reply, which I have his permission to print:

"I believe that the colour of the serum which you kindly sent me is due to a small increase of the bilirubin content and to the (oxy)haemoglobin dissolved in the serum. There was no haematin to be discovered in this specimen.

"We generally find a moderate increase of the bilirubin in the serum of patients with pernicious anaemia, especially during the periods of intensive blood destruction. Whereas the normal rate is found at about 0.2 to 0.3 or 0.5 of our units, in pernicious anaemia we find 1 to 1.5 or even 2 units. In your specimen the bilirubin value amounted to 1 unit.

"Haematin is not always present in the serum of pernicious anaemia, not even during the period of going downhill. In this disease it seldom is present in such a quantity that the colour becomes brownish, but in exceptional cases this condition is met with. (In other diseases the quantity of haematin may be so large as to give a brownish tinge to the serum—as, for instance, in some cases of anaerobic sepsis.) The quantity of haematin being only very small in pernicious anaemia, you will very seldom find a band in the red region of the spectrum. We demonstrate the haematin by adding ammonium sulphide, whereupon the very dark bands of 'haemochromogen' appear. (As they disappear rapidly, one has to look immediately after having added the sulphide or whilst an assistant adds it before the spectroscope.) But, as I have mentioned already, in your specimen there were no traces to be found, even in this way.

"Now as to the presence of the haemoglobin in the serum. This point is a very difficult and important one. We should be very careful, of course, in drawing conclusions from it. For it is always possible that the haemoglobin has escaped from the corpuscles because of the manipulations during and after collecting the blood. Therefore we always take the most careful precautions that we can for preventing artificial haemolysis (dry and warmed tubes, no shaking of the tubes, careful centrifugalizing, etc.).

"Might it not be possible that the presence of haemoglobin in the serum in your cases of pernicious anaemia is due to artificial haemolysis? For in our cases I do not remember to have found more haemoglobin than can be met with in every normal serum. Perhaps we did not look at it with sufficient attention. I must confess that the supposition of an artificial haemolysis as a cause of the presence of haemoglobin in your specimens of pernicious anaemia cannot explain the curious fact that you never find it in other anaemias.

"Theoretically, of course, it is quite intelligible that a slight intravascular haemolysis should occur in patients with pernicious anaemia. I think it would be of the greatest interest to repeat your experiments with the most careful precautions. I hope you will succeed in bringing this problem into clearness. I shall pay attention to it and let you know the results of our observations."

After receiving the letter I took blood from a patient with a sterilized and perfectly dry Wassermann outfit needle and rubber tubing, letting the blood flow into a paraffined test tube. This was carefully placed in an inclined position and the serum separated well; it was perfectly clear and of yellow colour. It was withdrawn by pipette introduced well away from the clot and well centrifuged. The oxyhaemoglobin bands were there as before. I could not get the haemochromogen bands by adding ammonium sulphide. This suggests that my previous methods were equally careful. I have purposely avoided the immediate treatment of the blood in a centrifuge, fearing that some traumatic haemolysis might be caused.

When the yellow serum of pernicious anaemia is kept in sealed tubes it begins to lose its colour in a few days, and by the end of a week the absorption bands of oxyhaemoglobin become much less clear and eventually indistinguishable. In one case it turned to a light cherry colour after being kept in a sealed tube a couple of months, and gave a spectrum of haemochromogen. I could not understand what had happened when the serum lost its colour and the bands of oxyhaemoglobin until I heard from Professor Hijmans van den Bergh of his methods of identifying haematin by reducing it with ammonium sulphide and production of haemochromogen. It

then became quite clear, especially when it is remembered that the spectrum of haemochromogen will appear in dilution of 1 in 25,000, and that its formation is even a more delicate test for blood than the spectrum of oxyhaemoglobin itself.[2] The explanation of the loss of colour in the sealed tubes seems to be that the oxyhaemoglobin changes to haematin in time, and this in weak solution does not deepen the colour of the serum to the same extent as the haemoglobin does. This explanation I put to the test by unsealing an ampoule of serum which I had kept for a couple of months, and which, from being quite yellow and giving good oxyhaemoglobin bands when fresh, had become pale and showed no spectrum. On adding to this some ammonium sulphide I obtained a very clear absorption spectrum of haemochromogen, clearer than that of oxyhaemoglobin had originally been. The change to the cherry red in the ampoules is probably due to the oxyhaemoglobin being changed to haematin, and this body being further changed, probably by decomposition, to haemochromogen, which has a cherry-red colour in solution, haematin being in the same strength nearly colourless.

Professor Hijmans van den Bergh says that he has not paid much attention to the oxyhaemoglobin in pernicious anaemia serum, being chiefly interested in the haematin. It is possible, however, that the haemoglobin is the forerunner of the haematin and its presence in the plasma in the blood vessels the essential feature of pernicious anaemia. Some haemoglobin compound most probably does circulate in the plasma ready to be deposited as haemosiderin in the liver. An explanation of the difference in my results and those of other Continental observers may be that there is more than one variety of pernicious anaemia, and clinical appearances of the disease, in my opinion, support this view.

In two or three of my original cases in which the serum was rather orange-coloured I found the oxyhaemoglobin bands more distinct than usual, but only in one, which I met with quite recently, have I seen a band in the red. I did not try Professor Hijmans van den Bergh's method of getting the haematin bands until the last month because I did not know of it earlier. I failed to get haemochromogen by adding ammonium sulphide in the ordinary way.

The fact that oxyhaemoglobin occurs in the serum of cases of pernicious anaemia obtained from the vein of a living person and separated from the clot in a test tube is, of course, no proof that the oxyhaemoglobin is present in the plasma of the circulating blood. It is quite possible that in spite of every precaution taken to prevent it some haemoglobin escapes from the red corpuscles during the process of withdrawal of blood from a vein; but even if artificial haemolysis does occur this does not affect the fact that oxyhaemoglobin appears in the serum of pernicious anaemia, but not in that obtained by identical methods and with identical precautions from any other form of anaemia. There is, however, some reason to think that oxyhaemoglobin does exist in the plasma of the circulating blood. It is an unquestioned fact that the red corpuscles in pernicious anaemia carry, on the average, more than the normal amount of oxyhaemoglobin, sometimes as much as 1.5 times this amount; and it is quite possible that more oxyhaemoglobin is manufactured in pernicious anaemia than there are red corpuscles to carry it, and that some circulates free in the plasma. In pernicious anaemia there is not such a deficiency of oxyhaemoglobin as there is in an anaemia of low colour index and low blood count.

Is Pernicious Anaemia a Malignant Disease of the Blood?

Pernicious anaemia may be a form of malignant disease of the blood—that is, a reversion to embryonic type of blood and blood formation. The scarcity of blood plates with such evidence of red-marrow activity always strikes me as peculiar. At most, the blood plates number very few, as compared with normal blood, and are insignificant as compared with the enormous numbers found in some cases of secondary anaemia, such as that due to moderate haemorrhage, chronic nephritis, and cancer. In some cases of pernicious anaemia scarcely any can be seen. As blood plates contain nuclein and resist peptic digestion, they are probably the remains of the nucleus of the bone-marrow erythroblast. Their presence, and that of nucleated red cells, is, in my opinion, an indication of an attempt by the bone marrow to regenerate red blood corpuscles, and when they occur the prospects of improvement in pernicious anaemia, temporarily at any rate, are good. But their small number conveys the impression that with all its apparent activity, judged from its appearance, the marrow in pernicious anaemia is not producing red cells well, and this raises the question, Are they being produced anywhere else? Some justification for this question is to be found in the resemblance which the megalocytes, microcytes, and poikilocytes of the disease have to similar forms met with in embryonic mammalian blood, as described by Emmel.[3] His observations are striking, and in my opinion support the view that in pernicious anaemia there is a reversion to embryonic type of blood and blood formation. I hope at a later date to go more fully into this question and discuss the bearing which the scantiness of blood plates has on the nature of the disease.

Treatment.

In conclusion, I may refer briefly to the very remarkable improvement which generally takes place for a longer or shorter time when pernicious anaemia is treated by liquor arsenicalis in graduated doses. I always begin with 4 minims three times a day after food, and increase the dose by one minim every forty-eight hours until 8 minims for each dose are being taken. Then by a similarly graduated decrease in dose the original 4-minim dose is reached. Forty-eight hours later the arsenic should be stopped altogether for a week and then the same graduated course of treatment carried out again. The patient should be kept in bed and in the open air as much as possible and have well-ventilated rooms. Arsenic should be given in this way on and off for several months. When there is any cardiac muscle failure, with dilatation of the heart and oedema, as there often is in pernicious anaemia, digitalis in doses of 1/240 grain digitoxin (Nativelle's granule) daily in addition to the arsenic soon brings about a wonderful improvement; and I have seen patients with both feet in the grave recover in six weeks comparative health and activity. They all tend to relapse, however. Very few patients suffering from pernicious anaemia cannot take liquor arsenicalis. Occasionally I have given it even when vomiting and diarrhoea were present when the case first came under observation, with improvement in the symptoms.

Conclusions.

1. The serum of pernicious anaemia is always definitely yellow and that of all other anaemias nearly colourless. The colour may be seen in two or three drops of serum in a small glass bulb.
2. Oxyhaemoglobin absorption bands appear in the serum of the great majority of cases of pernicious anaemia, and can easily be seen by a pocket spectroscope. They are not seen in the serum of other anaemias.
3. Continental observers have found haematin in the serum of some cases of pernicious anaemia, and they believe that bilirubin gives rise to the yellow colour.
4. There may be some free oxyhaemoglobin in the plasma of the circulating blood of the disease.
5. It is possible, judging from the serum, that there are at least two varieties of the disease.
6. Blood plates are generally very scanty or absent in the disease, but when present are a sign of potential regeneration of red cells by the bone marrow and indicate a good temporary prognosis.
7. The abnormal conditions of the red corpuscles suggest the possibility of pernicious anaemia being a malignant disease of the blood.

REFERENCES.

[1] *Diseases of the Blood*, p. 138. [2] Starling's *Principles of Physiology*, p. 827. [3] *Amer. Journ. of Anatomy*, 1914, vol. 16, p. 127, on "The Origin of Non-nucleated Erythrocytes by a Process of Cytoplasmic Constriction."

HIGH PERCENTAGE OF ABNORMAL OBSTETRIC CASES IN GENERAL PRACTICE.

BY

J. WALLACE ANDERSON, M.B., CH.B.GLASG.

FROM January 1st to June 15th, 1922, the percentage of abnormal obstetric cases met with in my practice has been unusually high. Out of a total of 42 cases attended, 19 (45.2 per cent.) have presented some definite abnormality. These cases occurred in the ordinary course of practice, only one having been seen on the requisition of a midwife. The abnormal cases were as undernoted.

1. Primipara, aged 34. Great oedema of feet and legs for one week before confinement; very slight albuminuria. On commencement of labour great headache and flashes before the eyes. One

eclamptic seizure during late second stage. Anaesthetic immediately commenced and continued for two and a half hours, during which time forceps delivery was done. Complete recovery of mother and child, although the latter had icterus neonatorum for a time.

2. Primipara, aged 35. Hyperemesis gravidarum throughout pregnancy, and albuminuria for several weeks towards end. Two days in labour, which was practically painless; early rupture of membranes; uterine inertia. Forceps delivery; mother very toxic for three days afterwards, but completely recovered. Child apparently well for three days, then died in a convulsion.

3. Primipara, aged 29 (sister of No. 2). Hyperemesis gravidarum throughout pregnancy, but never albuminuria. Forty-eight hours in labour; slight general contraction of pelvis. High and difficult forceps delivery. Both well.

4. Multipara, aged 34. Persistent occipito-posterior delivery; both well. Eighteen months previously had suspension of the uterus (after Gilliam) with posterior colpo-perineorrhaphy and trachelorrhaphy.

5. Multipara, aged 32. Albuminuria, headaches, and oedema for three weeks. Breech presentation at term; four hours' labour. Delivery under anaesthetic accomplished in less than five minutes; no prolapse of, or pressure on, cord by head; asphyxia pallida. Prolonged artificial respiration and stimulation unfruitful. Recovery of mother, after being very toxic for first five days. At previous parturition, which was vertex, child was stillborn at term, without apparent reason.

6. Multipara, aged 26. Twins—one vertex, one breech. All well.

7. Primipara, aged 20. On first examination, os fully dilated, and flat pelvis discovered. No presenting part felt. Spontaneous rupture of membranes in a few minutes, followed by unaided and rapid delivery of an anencephalic monster, which survived for a few minutes only. Mother well.

8. Multipara, aged 29. Sudden haemorrhage without pain, at or near term. Marginal placenta praevia. Vagina packed twice under anaesthesia, with interval of twenty-four hours. Forceps delivery later. Both well.

9. Primipara, aged 26. Profuse haemorrhage at seven months, followed by labour. Central placenta praevia. Rapid delivery of stillborn foetus. Recovery of mother.

10. Primipara, aged 22. At six and a half months urine loaded with albumin, headaches, and sickness with flashes, but no oedema. Three weeks' rigid treatment, without improvement. Induction by bougies. Delivery in seven hours of a living child (breech), which, despite prematurity and icterus, has done well. Mother well, but still has some albumin.

11. Primipara, aged 22. Face presentation. Delivered herself in about twelve hours. Both well.

12. Multipara, aged 34. At six months, urine clear; at eight months, loaded with albumin, and very great oedema of face and legs. Abdomen notably enlarged. Rest and milk diet. Two days later, sudden large haemorrhage, followed by labour, and delivery of triplets, weighing 6½, 3½, and 3 lb. respectively. Mother and three children all well so far. At last parturition had placenta praevia, since when she has had an abortion, followed by dilatation and curettage.

13. Multipara, aged 25. Urine clear of albumin on several examinations before and at eight months. Natural delivery of living child at term. Oedema of legs and eyes noticed at labour. Child unnaturally quiet, and died twenty-four hours later. At previous confinement had a macerated full-time child.

14. Primipara, aged 39. Amenorrhoea for four months, with sickness for latter two months. Abdomen enlarged to above umbilicus. Profuse haemorrhage with colicky pains. Hydatidiform mole partially expelled, and partially extracted manually and by careful curettage. Second curettage nine days later, to complete the evacuation of uterus. Well to date.

15. Primipara, aged 30. Three weeks beyond calculated term. Intermittent labour for three days before being seen. Slight general contraction of pelvis (conjugate about 3½ inches). Large head felt, freely movable above pubis. Twenty-four hours later soft parts dilating, with finger-like membranes presenting, but still no attempt at engagement. Caesarean section. Living child weighing 9½ lb. Both well.

16, 17, 18, and 19 were cases in which delivery had to be completed by forceps and chloroform, owing to the length of the second stage.

Analysis of the Series of Cases.

1. As already stated, out of 42 cases, 19 (45.2 per cent.) presented some definite abnormality.

2. Of the 15 detailed cases, 9 (60 per cent.) were primiparae.

3. Of the 15 detailed cases, 7 (46.7 per cent.) were toxaemias of pregnancy (four were in primiparae).

4. Of the 15 detailed cases, the average age was just over 29.

Note.—One of the normal cases in the series was a patient whose first pregnancy was twins (with survival of both), whose second pregnancy was tubal, with consequent laparotomy and removal of one tube and ovary, and whose present (and third) was normal.

I wish to acknowledge my indebtedness to my assistant, Dr. P. B. Farrar, for his collaboration with me, both in the conduct of the cases and in extracting the details and statistics from my case-book.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ALCOHOL IN ITS RELATION TO DISEASE.

THE facts here stated are the outcome of observations made on a series of 150 cases treated in the medical wards of the London Temperance Hospital; they include 75 non-abstainers and 75 abstainers.

In a series of 76 cases of acute lobar pneumonia it was observed that the number of deaths among the 38 non-abstainers was proportionately greater. In these also relapse was found to be more frequent, and the disease ran a much more severe course. The temperature reached a greater height, with a tendency to fall by lysis and not by crisis. There was either leucopenia or a very negligible leucocytosis, showing that the resistance of the tissues to the infection was poor. Dilatation of the heart was more frequent and supervened earlier. In several cases there was a tendency to complications (pericarditis, otitis media, and pneumococcal arthritis). In those cases which recovered the convalescence was slow, there were irregular rises of temperature during convalescence, and the heart remained irritable in response to effort.

In a series of 30 cases of influenza, the tendency to post-influenzal bronchopneumonia appeared to be more marked in the 15 cases that were non-abstainers, the heart was similarly more affected, and noisy delirium often supervened.

Of 20 cases of chronic Bright's disease, with high blood pressure, half were habitual drinkers, and in these damage to the kidneys appeared to be proportionately greater, and it was with difficulty that one could appreciably lower the blood pressure.

In a series of 24 cases of valvular disease of the heart, among the 12 who were non-abstainers it was found that failure of compensation ensued comparatively earlier, and there seemed to be a lack of the normal "reserve power" of the heart musculature, and hence dilatation, and in a few cases failure of the heart ensued before any evident muscular hypertrophy could take place, as was confirmed *post mortem* in the cases that reached a fatal termination.

One cannot help being convinced from these observations that there must be a substratum of truth in the oft-repeated statement that habitual indulgence in alcohol is demoralizing to the system, and tends to lower the normal powers of resistance of the tissues to microbial toxins. On the other hand, I have been equally impressed with the part alcohol has played in two cases of grave collapse and impending "cardiac distress" which I came across in private work. In these I found that hypodermic injection of 10 minims of brandy had an almost miraculous effect in reviving the patient after an injection of digitalin and strychnine had failed. Facts like these equally lead one to hold the view that, in the light of our present knowledge, the time for scrapping alcohol as a valuable therapeutic adjunct has not yet arrived.

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BUBONIC PLAGUE TREATED WITH NEO-SALVARSAN.

IN India as a whole plague is endemic. In the North-Western and the North-West Frontier provinces it breaks out in the epidemic form, usually in the spring of every year, and lasts well up to the commencement of summer. If even in June or July there is a heavy rainfall, the epidemic has been known more than once to recur with a high mortality.

Prophylactic treatment by vaccines confers immunity for a very limited period, and even then the results are not very encouraging. Some years ago, in a small village in the Punjab, inhabitants were inoculated with vaccine, but unfortunately more than three-fourths died.

So far, we have no reliable serum for curative treatment, and in my opinion the failure is due to the fact that serum-yielding animals—namely, horses, cattle, and goats—are naturally immune to the disease. Plague being a disease of rats primarily, if amongst the rodent tribe we could find a big enough animal to yield an adequate amount of serum, it is probable that a serum as efficient as that for diphtheria or tetanus may be prepared.

Bubonic plague being septicaemic, it seems pathologically reasonable (in theory at least) to assume that if a drug were

introduced into the circulation which would destroy *Pasteurella pestis* and yet not harm the cells of the body, it would have a beneficial effect on the course of the ailment.

A young man, about 22 years of age, had a prominent painful bubo in the left groin, and fluid taken from this bubo proved positive for *B. pestis*. The patient was seen by me on May 11th, three days after the onset of the disease; his temperature was 104° F. at that time. At 3 p.m. I injected 0.45 gram of neo-salvarsan in 10 c.cm. distilled water intravenously, and 0.5 c.cm. pituitary extract subcutaneously. That very evening the temperature commenced to fall by lysis, and the symptoms (headache, sinking feeling, and restlessness) began to abate. On May 15th the temperature was 100° F., and on May 16th it was normal. The patient, except for the usual debility after the disease, is now quite well. The bubo was treated by the application of belladonna and glycerin.

The efficiency of the treatment cannot be strictly stated to be conclusively proved, yet the benefit shown in one case even may reasonably encourage further trial.

When going to a case of plague I always wear long boots over the trousers up to the knees, and anoint my hands, arms, and neck with eucalyptus oil. I refrain from scratching an insect bite, but bathe it with carbolic lotion 1 in 20, followed by the application of eucalyptus oil.

Peshawar City, India. RAM MANSOOR, M.B., B.S.Durh.

Reviews.

THE PHILOSOPHY OF SUCCESS.

UNDER the title *Some Things that Matter*,[1] Lord RIDDELL, so well known as a newspaper proprietor and representative of the British press at the Peace Conference, has brought together a series of articles which he contributed to *John o' London's Weekly*, on concentration, observation, thought, reasoning, and other mental qualities. These essays have attraction as conveying part at least of the philosophy of a shrewd student of affairs as well as a reader of books, who, happening to have been trained professionally as a lawyer, also looks at matters with a severe sense of practice and utility.

Lord Riddell would be the first to acknowledge that the conditions of their original publication have tended to make these contributions rather fragmentary, though none the less well worth reading. The first article, for example, is excellent, even if unintentionally humorous, in its Sandow-like recommendations for exercising the mind with "brisk, vigorous concentration for a quarter of an hour a day, extending to two hours a day by the end of the month," and it is, of course, quite sound in its reminder that the habit grows with interest, and that the interest may be increased with the habit: this is what the essay amounts to. But such a view must not be taken too absolutely, and might with advantage be expanded. Lord Riddell cites as his text Emerson's words, "Concentration is the secret of success." That is true enough so far as it goes, but mere concentration without the cultivation of mental initiative will not carry far. One of our greatest psychologists has pointed out that though restless men may prove to be failures, the most successful of human beings are men who in certain respects are prodigiously restless. The considerations are complementary to each other.

In writing on "Observation" Lord Riddell will probably surprise many of his readers by his disclosure of the lack of accuracy amongst educated persons. He gives as an illustration a test made in a university class. Dr. Munsterberg has related similar tests amongst professional men, including, if we remember rightly, a selected body of lawyers. It is desirable to urge development of all the senses; but apparent weakness may be due to preoccupation in other mental concerns. Lord Riddell, going on to advise young men "How to read," shows that his own groundwork was law books, and that by their study he learnt to judge the value of evidence. This capacity he holds to be one of the most valuable qualifications in life, and there is great force in what he says on this point. For that matter he might also have recommended some scientific books, for they have to be understood to be read at all, and this tends to clarity of definition. Himself an able controversialist and witty after-dinner speaker, Lord Riddell is quite at his best in dealing with the art of public speaking, recognizing, though he does not put it in these precise words, that it should make a threefold appeal—to the intellect, to the emotions, and to the will.

Other articles under various headings treat of circumstantial evidence, of logic, of relevancy, and of legal maxims. They form easy reading on what some are inclined to regard as dry subjects. They will doubtless be liked the better because the writer has drawn upon his store of anecdotes for illustrations. Sagaciously, too, he makes no claim to sum up the rules of action and conduct. His book is entitled "Some Things that Matter," not "The Things that Matter," and so he runs no risk to reputation by this adventure into authorship. The volume is not designed as a guide to life.

[1] *Some Things that Matter*. By Lord Riddell. London: Hodder and Stoughton, Ltd. 1922. (Demy 8vo, pp. 187; one portrait. 7s. 6d. net.)

TAYLOR AND POULTON'S "MEDICINE."

TAYLOR'S *Practice of Medicine*[2] first appeared in 1890. The twelfth edition has been wisely and extremely thoroughly edited by Dr. E. P. POULTON, who, recognizing that it is now beyond the power of an individual to cover the whole field of medicine, has delegated to Dr. C. P. Symonds the section on nervous diseases and to Dr. H. W. Barber the responsibility for the account of skin affections. It may be remembered that in Hilton Fagge's *Medicine* (1886) two parts—namely, those on valvular disease of the heart and on cutaneous diseases—were left unwritten by the author and were provided by the late Sir Samuel Wilks and the late Dr. P. H. Pye-Smith.

Although it is only four years since the late Sir Frederick Taylor brought out the eleventh edition of his book, the present volume has undergone very considerable changes, as is shown by the addition of twenty-four new articles and by the large number that have been practically rewritten. Of the twenty-four plates, of which twenty are radiograms and four sections of the spinal cord, nineteen are new. The revision has been remarkably successful and complete, and as evidence of its up-to-date character attention may be drawn to the inclusion in the appendix of van den Bergh's tests for bilirubin in the blood serum, with a reference to Dr. J. W. McNee's contributions to the subject in our columns so recently as May 13th last. The diseases of metabolism and those of the endocrine glands are considered together in a section prefaced by a short summary, which the editor is so specially fitted to contribute, of basal metabolism; the account of diabetes mellitus follows and is naturally both full and up to date, due credit being given to Dr. George Graham for the independent initiation of the method of treatment associated with Allen's name. Obesity is dealt with in this section, but gout comes under the diseases of joints next to infective arthritis. The tests for renal and hepatic function are described, and throughout the volume the clinical tests and methods of investigation are clearly outlined. Encephalitis lethargica, one of the new articles, is placed between acute poliomyelitis and hydrophobia and has been written by Dr. C. P. Symonds, who, as mentioned above, is responsible for the diseases of the nervous system; and Dr. J. J. Conybeare has revised and rewritten many of the articles on tropical diseases.

Dr. Poulton is to be congratulated on having admirably maintained the character of this successful work for students, whether qualified or not, of medicine.

NON-SPECIFIC PROTEIN THERAPY.

IN a review of his book *Hormone Therapy* (BRITISH MEDICAL JOURNAL, 1922, i, p. 955) it was said that the author, Dr. D. Montgomerie Paton, had for twenty-three years treated various diseases by the oral administration of antidiphtherial serum, and in a letter published on July 1st (p. 29) Dr. Allison of Newcastle-on-Tyne stated that he had employed the method since 1892, more than thirty years ago. Nevertheless the conception of non-specific protein treatment did not attract much attention until six or seven years ago. As Dr. W. F. PETERSEN of Chicago has had considerable experience of the method, to which attention has from time to time been directed in our columns, his *Protein Therapy and Non-specific Resistance*,[3] with its comprehensive review of the whole subject, is most welcome. The natural prejudice against non-specific therapy—for example, the treatment of

[2] *Taylor's Practice of Medicine*, twelfth edition. By E. P. Poulton, M.D., F.R.C.P., with assistance of C. Putnam Symonds, M.D., F.R.C.P., and H. W. Barber, M.B., F.R.C.P. London: J. and A. Churchill. 1922. (Roy. 8vo, pp. xiv + 980; 24 plates, 87 figures. 30s. net.)

[3] *Protein Therapy and Non-specific Resistance*. By W. F. Petersen, M.D.; with an Introduction by J. L. Miller, M.D. New York: The Macmillan Co. 1922. (Med. 8vo, pp. xvii + 314; 27 figures. 21s. net.)

gonococcic arthritis by typhoid and paratyphoid vaccine—as an illogical and haphazard method which opens the door to quackery has been forced to give way before the clinical results that are so striking and incontestable as to necessitate a broadening of our views on the problems of immunity. The non-specific reaction does not, of course, bring into play any new factor of resistance, but it deals with the stimulation of the forces of resistance by various substances, such as vaccines of bacteria other than those infecting the patients, milk, peptone, nuclein, and by other methods, such as the injection of colloidal metals, lipoids, enzymes, fixation abscess, heliotherapy, and even the old method of counter-irritation. Usually these bodies induce a general reaction, manifested by rigor, fever, and leucocytosis, the beneficial effect being often, but by no means invariably, in proportion to the reaction. Protein therapy is sometimes spoken of as "shock," "foreign protein," "colloid," or "hetero-vaccine therapy"; but v. Groer's term "ergotropie" is possibly more correct, inasmuch as it emphasizes the reaction of the patient and ignores the causal agent of this reaction. Dr. Petersen describes the general and the focal reactions that follow non-specific therapy, and then proceeds to epitomize the various theories put forward by Weichardt, Döllken, Nolf, and others as to the mechanism of the reaction, the mobilization of enzymes after injection being fully considered. In the chapter on the indications and contraindications of non-specific treatment it is pointed out that the method is purely one of stimulation, whereby the forces of cellular and humoral resistance are for a short time keyed up to the very highest pitch. The treatment is therefore naturally most effective at an early stage of infection before the cells of the body have become exhausted; the injections should be given slowly and the first dose should be relatively small. The author insists that this form of treatment should in no circumstances be considered as a rival or as a substitute for available specific measures of proved value. The clinical results of non-specific treatment of a large number of diseases are described in successive chapters devoted to arthritis (on which very considerable benefit has been obtained), typhoid and other infections, spirochaetal and protozoan infections, and miscellaneous affections. This work is clearly written, provided with an extensive bibliography, and supplies a definite want.

Professor DANYSZ, of the Pasteur Institute, Paris, is well known as a writer on what may be called the philosophy of pathology, and a few years ago we devoted a good deal of space to a book by him on the principles of the evolution of infectious diseases (BRITISH MEDICAL JOURNAL, September 21st, 1918, p. 323). This book has now been translated into English and condensed by Dr. F. M. RACKEMANN, and published with a very long title (transcribed below) which may here be abbreviated to the *Evolution of Disease*.[4] The subject is complicated and in spite of all the translator has done the difficulties of the presentation of the problems with which it deals remain to strike the reader. The first of the two parts of the book sketches the theories of immunity associated with Metchnikoff and Ehrlich's names, and gives the present day conception of immunity in the most general terms as a necessary reaction of the whole organism against each and every substance which is not a part of the organism when introduced into its interior in any manner. These substances fall into two groups: (*a*) the colloids, which after an incubation period produce specific antibodies in excess, and (*b*) crystalloids, which do not give rise to specific antibodies. Normally colloids when taken by the mouth are changed by gastro-intestinal digestion into amino-acids and thus absorbed, but when colloids pass into the circulation from failure of the alimentary canal or in other ways—for example, by hypodermic injection—the tissue cells have to undertake the process of digestion, and this leads to the formation of antibodies in excess and to anaphylaxis which should be regarded as a pathological reaction of the process of immunity, and as the cause of symptoms in infectious disease. Thus in enteric fever the anaphylactic crises last for weeks, a condition of actual anaphylaxis different from latent anaphylaxis in which the organism is surcharged with antibodies as the result of previous ingestion or injection of the antigen or as a result of remission of diseases with relapses and with long evolution, such as tuberculosis, syphilis, trypanosomiasis, and malaria. Anaphylactic shock or crises can be prevented by anti-anaphylactic inoculation, which leads to progressive neutralization of the antibody excess; this beneficial effect can be obtained not only by the injection of the original antigen, such as an autogenous vaccine, but by non-specific protein. In the second part of the book, which still contains a good deal of repetition, this non-specific form of treatment is further discussed, especially in chronic diseases such as skin affections and asthma. It is a pity that the arrangement and method of presentation of this interesting but intricate subject are not such as to minimize the inherent difficulties.

[4] *The Evolution of Disease; with a Discussion of the Immune Reactions occurring in Infectious and Non-infectious Diseases: a Theory of Immunity, of Anaphylaxis, and of Anti-anaphylaxis.* By Professor J. Danysz, translated by F. M. Rackemann, M.D. Philadelphia and New York: Lea and Febiger. 1921. (Demy 8vo, pp. xii+194. 2.75 dols.)

THE SINGLE-HANDED HOUSEWIFE.

MRS. MARGARET LEONORA EYLES has written a book entitled *The Woman in the Little House*.[5] It is an account, based upon her own experiences and observations, of the manner of life of the mothers of the average working class. Mrs. Eyles has, according to the foreword written by NORAH MARCH, the editor of *National Health*, written a novel of some note, a novel with a purpose; and this book is a book with a purpose without any gilding of the pill. Her ideas of what ought to be and what is may be summed up in two passages:

"As in the old Eden legend, at the bottom of it all is the woman, the mother. Make her well, happy, comfortable, contented, whether she be queen or charwoman, and the world begins to go on smooth, oiled wheels. . . . We are not even a C3 nation to-day. There is scarcely one among us who is quite whole. The women are overburdened, the men discontented, the children born of parents not quite physically fit, brought up by parents spiritually quite unfit for their God-like duty."

The problem is to secure the happy and contented housewife, in the little house, or in apartments, where she is single-handed, and has no helper, but must fend for herself, for her man and her children, all day and every day, in sickness and in health. That is no small problem. The writer sets out the picture in somewhat lurid colours; she has plenty of paint and a vigorous arm, and withal a somewhat irritable temper as her own confession suggests.

"For five years of my life I was never alone for one single instant; in bed, in the kitchen, shopping, gardening, always was someone very near to me, touching me most of the time. I felt sometimes as though I would come to hate these crowding people who were really so dear to me. Is it in one of these momentary spasms of impatient desire to get alone for a few minutes that murders are sometimes done?"

The house, economics, shopping and food, amusements and routine, and the sex problem are dealt with in turn. The house is all wrong, for "it was designed by men architects, and men don't live and move and have their being in their own houses. They are more or less paying guests." To judge from her criticisms of the houses she knew, and they are not in the slums, the local sanitary authority must have been singularly sleepy.

On the economic problem she has many things of interest to say, not least as to the married woman who goes out to work to add to the family funds.

"The home-keeping woman has no economic position. If she goes out to work the case is different. I cannot here enter into the question of the employment of mothers, except to say one thing—that the death rate among babies in Bradford is very much the highest in all England, and Bradford is the town which *spends most* on infant welfare *outside the home*; there are excellent crèches in Bradford; there are very few women who don't go to work all day, bringing back the little ones to homes that they are too tired to clean, and scrappy meals that they are too tired to prepare after a hard day's work in the mill.' She adds that 'in looking through the archives of Dr. Barnardo's Homes I noticed that almost every child who was sent there for being out of hand, destitute, neglected, and so on was the child of a woman who went out to work; most of the thoroughly troublesome, unmanageable little ones one encounters in the day schools are the children of mothers who have not time to be mothers.'"

But difficulties are not avoided where the mother does not become an out-worker, for then "money—or the lack of it—seems to rule everything in their lives. . . . Unless they become conscienceless and drifting, or unless they get drunk and forget, they never know what it is to be free of money worry."

She has a good word to say for the big stores and multiple shops, where food is sold of the best quality and cheaply, but for cash only. The little corner shops are snares in allowing bills to run, and dear in the poorness of the quality of their goods. The family meals are described as most unattractive. There is a "gorge" of ill-cooked food on Sundays, and a diminuendo of provision during the week. "The mother has

[5] *The Woman in the Little House.* By Margaret Leonora Eyles. With a foreword by Norah March, B.Sc. London: Grant Richards, Ltd. 1922. (Cr. 8vo, pp. 167. Price 4s. 6d. net.)

no idea of originality: she buys cheaply and badly; she knows very little about either cooking or shopping, because there is no one to teach her." The author considers the solution is to come in communal kitchens. Of amusements the working mother appears to have none—"marriage ends all the camaraderie of courtship. As soon as the first baby nears the home, the cage begins to close round the Woman in the Little House." There is nothing left but routine—monotonous, unvarying routine. The author says, "In time it will be seen that it pays to let mothers have their cooking and washing done by specialists rather than by their own amateur efforts, while they look after the children." And the State is to pay the mothers to look after the children, and there are to be convenient crèches where the mothers can leave their babies while she shops or plays. She believes that "in time there will be in every street its communal nursery." When the cooking and the washing are done for the mothers and there is a communal nursery in every street, one is inclined to wonder what the mother will find to do. Will it not be a case where "Satan finds some mischief still for idle hands to do"?

The sex problem has a separate chapter. It begins: "I shouldn't mind married life so much if it wasn't for bedtime." This remark the author avers she has heard five times. A young married woman who lamented the absence of her man at the war is told by an older woman: "No, my dear, you don't know what you're up agen yet. But you wait till you've been to bed over three thousand nights with the same man like me, and had to put up with everything. Then you'd be blooming glad the old Kayser went potty." According to the author the women "are simply bursting with a sense of injustice." Strange that we heard of no weeping and wailing and gnashing of teeth when the men came home from the war! Training in sex hygiene by pamphlets she thinks utterly futile—they "won't read pamphlets." "Sex instruction will simply have to form a part of the school curriculum, without any possibility of interference from ignorant parents; in this way the muddles that may spoil the next generation can be obviated." This statement, and the author's confession of the feeling of murder at the proximity of her dear ones, indicate the general attitude of this "reformer." The parents are "ignorant" and "interfering"; there is a cure-all by "simply" cooking for them, washing for them, nursing for them, and giving sex instruction to them. It may be that her ideas are right, but we scarcely think so. At any rate we are sure that her book will go the way of the pamphlets which she says are not read, for her writing is too much that of the chronic scold—it is wearisome.

NOTES ON BOOKS.

THE small volume *Wayside Sayings*[6] is a collection of proverbs from many nations. The collectors say that they have preferred those which are comparatively little known, and on the whole this claim seems justified, though on the first page they do challenge the reader to catch a weasel asleep. A proverb has been said to be the wisdom of many and the wit of one; it therefore suffers in translation, but even in their English guise some of the foreign proverbs are stimulating. The publisher has his own definition, which is that "proverbs represent the inherited commonsense of a nation"; if that be true it is curious to-day to find that so many nations have a proverb about the evils which will befall a house where the hen crows. Very few proverbs with a medical reference are quoted, but "a mother's son is not her own until he has had the small-pox" is suggestive of a state of affairs in this country which has gone by. Another proverb, "drought never brought dearth to England," might, if quoted a few weeks ago, have stilled some fears. It is a pleasant book for an idle half-hour.

The *Empire Municipal Directory and Year Book*[7] for 1922–23 is the fortieth issue of a comprehensive and convenient handbook. Besides officially corrected lists of all municipal authorities and their chief officials throughout the empire, it contains much information of general interest, including concise records of the last twelve months' progress in the several branches of municipal enterprise, sanitation, and public health. The summary of Legislation, Orders, Regulations, Memoranda, and Circulars affecting local authorities, begun in the 1918 issue, and covering the period from 1914 onwards, is brought up to date. There is also a useful bibliography of municipal and public health literature.

[6] *Wayside Sayings.* Collected by Selwyn Gurney Champion and Ethel Mayne Cordato. London: Duckworth and Co. 1922. (Cr. 8vo, pp. 122. 5s. net.)

[7] *The Empire Municipal Directory and Year Book, 1922-23.* Published by the Sanitary Publishing Company, Ltd., 8, Bream's Buildings, E.C.4. Price 10s. 6d. net.

POST-GRADUATE EDUCATION IN LONDON.

DEPUTATION TO THE MINISTER OF HEALTH.

A DEPUTATION was received by Sir Alfred Mond at the Ministry of Health on July 13th to discuss the facilities for post-graduate education in London, especially in view of the recommendations of the report of the Athlone Committee. The deputation, which was introduced by Captain W. E. Elliot, M.P., consisted of Sir Charles Sherrington (President of the Royal Society), Sir Humphry Rolleston (President of the Royal College of Physicians), Sir Anthony Bowlby (President of the Royal College of Surgeons), Sir George Makins (President of the Fellowship of Medicine), Sir Richard Luce (Chairman of Post-Graduate Committee, British Medical Association), Sir Berkeley Moynihan (Leeds), Sir Robert Jones (Liverpool), Sir Sydney Russell-Wells (until recently Vice-Chancellor of the University of London), Dr. George Blacker (Dean of the Medical School of University College Hospital), and Mr. H. J. Paterson (one of the honorary secretaries of the Fellowship of Medicine).

Sir GEORGE MAKINS said that the problem of providing a school for post-graduate study commensurate with the opportunities offered by London for instruction in medicine had exercised the minds of teachers in London and elsewhere for many years. Among those who had taken part in the earlier stages of this movement were Sir Jonathan Hutchinson, Sir William Broadbent, Sir Clifford Allbutt, and Sir William Osler. In 1918 a Fellowship of Medicine was started, at first as a social body, with a view to bringing graduates of different schools together. But it was quickly seen that it could fulfil a larger purpose, and accordingly it was amalgamated with the Post-Graduate Association, and Sir William Osler, who was president of the latter body, became the first president of the enlarged Fellowship. Since the end of 1918 some 1,300 graduates had been enrolled and had done a certain amount of post-graduate study in London. Of these students, 395 had come from civil practice in the United Kingdom, 167 from the services, 439 from the dominions, 247 from the United States, and 80 from various schools in Europe. A large number of appreciative letters had been received, acknowledging the help given by the Fellowship. The efforts of the Fellowship, however, had been hampered by insufficient financial resources. It was obvious that a post-graduate scheme of sufficient scope could not be maintained from voluntary resources alone. From the financial point of view the subject had two aspects—professional and administrative. With regard to the first, it was probable that the fees received from students would almost be sufficient to provide for the remuneration of teachers and lecturers and the cost of equipment. Administratively some capital grant was desired; such work as had hitherto been done by the Fellowship had been made possible through the generosity of the Royal Society of Medicine, which provided office and lecture rooms, and the medical journals, which freely inserted announcements. The Athlone Committee made seven specific recommendations, the seventh of which was already in process of realization, thanks to the Rockefeller gift. The Committee recognized that an existing individual school could not undertake the work of co-ordinating and regulating the numerous institutions which constituted the principal attraction of London for post-graduate students; moreover, if one school attempted to undertake these functions there might be jealousy and even opposition. For that reason the recommendation was made that a central bureau should be established, housed in a building containing not only offices, but some provision for social purposes, and that a principal officer—a medical man of standing—should be appointed to act as dean.

Sir A. MOND inquired as to the duties of this officer.

Sir GEORGE MAKINS said that it would be the task of such a dean to bring the whole of the hospitals and medical institutions into line, and to distribute people seeking post-graduate instruction among them.

Sir A. MOND said that surely a man who desired post-graduate facilities knew what he wanted. He did not undertake such study, which involved considerable expense to him, without a definite objective.

Sir GEORGE MAKINS urged that, nevertheless, the great majority of men who came from abroad or even from the provinces did not find it an easy matter in London to get the particular facilities they required.

Sir BERKELEY MOYNIHAN said that the Minister's question presupposed that a man was desirous of studying one particular thing under one particular teacher, but that was very exceptional, and he believed applied only in a very small proportion of cases. These men wanted guidance as to the lines they should follow. He agreed that if a man desired instruction in one particular branch of surgery the officer now suggested would not be necessary or would have a very limited function.

Sir GEORGE MAKINS said that the deputation laid considerable stress on the need for this dean or principal officer. On his work more than on anything else would depend the success or failure of the scheme. He agreed that in view of the present state of the public finances it might not be possible at the moment to carry out the first recommendation of the Athlone Committee relating to the establishment of the central post-graduate hospital, but he hoped that when conditions improved the University Grants Committee might be able to render aid in this connexion. He pointed out that the full development of a post-graduate scheme would have the effect of bringing together the students, at present scattered, who were undertaking post-graduate courses; it would create an academic atmosphere, and it would encourage the better use of the opportunities for research which London offered.

Dr. GEORGE BLACKER, speaking as a dean of an undergraduate medical school, said that a combination of post-graduate and undergraduate teaching was not advisable, or even feasible. Men engaged in post-graduate study did not like being taught along with undergraduates; this applied less to lectures than to clinical demonstrations and to classes conducted by question and answer. Owing to the large amount of work which had to be done in the medical curriculum, teachers of undergraduates were fully occupied, and if they were diverted to post-graduate teaching the teaching of undergraduates might suffer. Although there were a great number of patients in London teaching hospitals, the number suitable for teaching was not so vast as it might appear, and there was a danger, if post-graduate teaching were simply added to the other at the same place, that patients might be "over taught on." There was also considerable difficulty in providing the accommodation, many departments at present being overcrowded, and the lay authorities of hospitals could scarcely be expected to provide nursing facilities for teaching which was not a part of their own hospital schedule. It had been suggested that post-graduate teaching might be given in the units, but the proper function of the staff of the units was research and not teaching. The units could not deal with the "refresher" post-graduate who desired to rub up certain parts of his knowledge. He pleaded, therefore, for a separate institution to deal with post-graduate work.

Sir A. MOND said that it was rather a puzzle to him where the teachers for the post-graduate work were to come from without depriving undergraduates of some facilities.

Sir GEORGE MAKINS pointed out that although the undergraduate schools might be unwilling as schools to undertake post-graduate teaching, there were always teachers in those schools who would be willing to undertake such teaching for definite periods.

Dr. BLACKER also pointed out that there were a large number of honorary consultants attached to the London medical schools who would be willing to do this work, whereas the younger teachers, actively concerned with the undergraduate work, were fully occupied.

Sir BERKELEY MOYNIHAN said that it was very desirable that post-graduate work should be organized in such a manner as to secure greatly increased efficiency. The achievements of English medicine in the past entitled them to ask for this. In medicine as in other sciences the distinguishing feature of English thought had been its originality. English thought was creative. The new idea had been born or the new vision had first been seen in English minds more often than in the minds of men of other nations. Fundamental discoveries owed their origins to England more than to any other land. In London the opportunities for post-graduate work were unsurpassed. As a student in Berlin, and as a very frequent visitor to Paris, and with some knowledge of Vienna, he could say that the resources available for clinical work in London were unrivalled, although legislation continued so seriously to hamper research. These resources were undeveloped; they lacked organization, co-ordination, central direction, and inspiration, but with an enlightened policy and wise encouragement all these defects should disappear. Students attracted to the schools would be a great incentive to teachers, urging them to learn and appreciate other modes of thought and widely different experience. Such a school as the Fellowship desired to see established would be a centre of intellectual traffic, a clearing house for new views, which there would be discussed, tested, and appraised. Parochialism and self-satisfaction would wither in such an atmosphere. The necessity for wide views was never more urgent than now, and the effect of visitors upon teachers would be exhilarating and inspiring. In such a centre friendships would quickly form and ripen, not only among the graduates themselves but between teachers and pupils, to the great advantage of all. Internationally this would be of the greatest value. If men of different nations laboured together in medicine they learned to understand one another; all of them sought to emulate the zeal shown by the more ardent, to value the best things, and to condone many things which at first perhaps appeared repellent, provocative, or unlovely. The social advantages of such a school would be greatly increased by the provision of a central hostel, where men could see the most of each other and have informal discussion. Students who left after a few months' work would take away something more than knowledge. They would learn the English character by seeing its variety of expression at close quarters. They would carry with them an impulse to work on English lines. The English method had its peculiarities. It sought, not so much to impose, with authority, ready-made opinions upon its students as to encourage the mind of each student to seek its own method of inquiry and expression. A student was not so much taught as encouraged to learn. Education with us was not the provision of a meal but the creation of an appetite. English methods had therefore a stimulating and germinative influence.

Sir RICHARD LUCE dealt with the special needs of the practitioners in this country in the matter of post-graduate education. The needs of general practitioners who sought instruction in general courses of medicine and surgery, as distinct from special subjects, were of two kinds. In the first place, they needed instruction directed to the revision and refreshment of their general professional knowledge, which tended to become rusty after some years of immersion in professional routine, and, in the second place, they needed instruction directed to the bringing of their knowledge up to date in those branches of general medicine in which recent advances had been made. Other general practitioners sought instruction in special subjects; they were those who, after being in practice some time, desired to take up either partially or completely some specialty in which they had become interested. The need of this class was instruction either at a special hospital or in a special department of a general hospital. That there was a genuine demand among practitioners for post-graduate education was sufficiently borne out by the evidence given before the Athlone Committee, and by the fact that courses were already being successfully carried on both in London and the provinces. Two of his own immediate neighbours, country practitioners, gave up a portion of their annual holiday year by year to go back to their old school, one to Edinburgh and the other to St. Bartholomew's, for post-graduate vacation courses. That the practitioner needed and would be benefited by post-graduate instruction was even more certain than that he was asking for it. The present demand was certainly not as great as it ought to be. Post-graduate instruction could be made available for practitioners in three principal ways: (1) by courses of instruction, theoretical and practical, at special or general hospitals where the staff was prepared to give the necessary teaching; (2) by facilities for practitioners to be attached as clinical assistants for shorter or longer periods in the special and general hospitals; (3) by lectures given by approved teachers to groups of medical men at local centres, such as those arranged by the British Medical Association. The second method was specially useful for those practitioners who required instruction in a specialty. The causes which prevented post-graduate education from being more popular with practitioners were, in the first place, lack of stimulus, the doctor getting no very direct return for his trouble, no diploma or special prestige; in the second place, expense and lack of time, for the country practitioner could not afford more than a short annual vacation, and it was only the enthusiast who would take the "busman's holiday"; and, in the third place, the fact that facilities for instruction were not brought very close to the majority of practitioners. The practitioner seeking instruction in London required the assistance of some central organization which would help him to find the class of instruction he wanted and would give

him an approved introduction to teachers. The movement for post-graduate education could best be furthered by stimulating public opinion, both medical and lay, with regard to the need of it, by providing instruction as economically as possible, and making it intellectually and socially attractive, and by ensuring that the instruction was easy of access for the practitioner. The proposal of the Athlone Committee to establish a central post graduate hospital in London was not approved by the Council of the British Medical Association.

Sir A. MOND asked the reason for this attitude of the Council.

Sir RICHARD LUCE said that he thought the Council believed that a successful hospital of the kind would be impract cable. The Council's opinion was that the movement would best be helped by the official recognition of all the institutions giving post-graduate instruction, and by the issue to them through the University Grants Committee of a share of such funds as might be available. The establishment of a central bureau in London, however, on the lines of the Fellowship of Medicine, to co-ordinate the work not only in London but throughout the country, would be a great step, and would form a centre around which the movement could grow to worthy proportions.

Sir CHARLES SHERRINGTON said that he could claim to have some personal first-hand contact with the stream of post-graduates coming from across the Atlantic. These men came to this country practically all the year round, but especially in the early summer. The Fellowship of Medicine had dealt only with a comparative few. The practitioners who sought instruction included a great many of the younger teachers at the medical schools attached to the hospitals in the United States and Canada. They were people who knew what they wanted but did not know where it was to be obtained, and it often happened that through lack of proper direction they sought it in another country—that is, a Continental country—in spite of the difference of language and of professional and nursing régime.

Sir A. MOND said that he was very much obliged to the deputation and much interested in the information placed before him. Undoubtedly the better the organization the better the results. That was quite natural in view of the rather scattered character of the London teaching hospitals. He had no doubt that it would be a good deal more difficult for people to find what they wanted in London than in Paris or Berlin or Vienna. Many people seemed to be unable to discover where London University was; with the development of the Bloomsbury scheme some of this difficulty would disappear. The problem was largely one of organization. He confessed that he had come to have a constitutional objection to the creation of more offices, and he was disposed to be critical whenever he saw the word "office" mentioned in a scheme. But he had no doubt that this particular administration could usefully be set up. The question was as to the provision of the initial expense. He would suggest that the expense should be borne by the people who were to benefit from the provision. Why should not the Americans and others who wanted information pay for it? Surely it would be possible to have an organization in which a considerable proportion, if not the whole, of the expenditure would be recovered from those who benefited. He gathered from the Athlone report that the proposed official who was to run the central office was to have the duty of arranging the whole of the courses of instruction and the management of the central hospital. He could understand that that would be a task for an experienced man, who might properly be highly recompensed. It was a different case from the one to which Sir George Makins seemed to refer, in which the function of the officer would be merely to direct to the proper source those who sought post-graduate facilities; this, surely, did not require any special ability. He knew that the members of the deputation wished to attend, as he did himself, a function at the Abbey which was due to begin almost immediately, and therefore he could not enter into a long discussion. But it was no secret that these were days of departmental economy, and that so far from being able to spend large additional sums it was a matter of considerable difficulty to obtain even small allocations. If, however, he could do anything to assist the deputation he would be very pleased, because he appreciated the importance of the case which had been laid before him. He hoped that none of them would consider the scheme of a central hospital as being in any way dead. He had been greatly impressed by the points made by Dr. Blacker, and he realized the arguments in favour of a separate institution for post-graduate work. Some institution of this kind would be required if post-graduate work on a large scale were to be undertaken.

THE FELLOWSHIP OF MEDICINE.

The annual meeting of the Fellowship of Medicine and Post-Graduate Medical Association was held on July 14th at the house of the Royal Society of Medicine, under the presidency of Sir GEORGE MAKINS. The proceedings were very brief and formal.

Sir GEORGE MAKINS moved the adoption of the report of the honorary secretaries, which stated that 167 further enrolments of post-graduates had been made, including 22 from India and 27 from the United States. Berlin and Vienna were regaining their popularity as centres of post-graduate teaching, and Vienna especially attracted a great many post-graduate students from the United States, so that the majority of the American visitors who had taken courses in connexion with the Fellowship had stayed in London only for short periods on their way to or from the Continent. The recommendations of the Athlone Committee, if carried out, would make London a world centre for post-graduate students. The establishment of a post-graduate hospital and school might for the present have to be postponed, but no time should be lost in providing a central bureau with library and hostel. This had formed the subject of a deputation to the Minister of Health on the previous day. The events of the year included the affiliation of the South-West London Post-Graduate Association with the Fellowship, the organization of special short courses in medicine and surgery, and the extension of special facilities to post-graduate students by individual hospitals, apart from the courses organized by the Fellowship itself. The medical journals were to be thanked for all that they had done to make the Fellowship known, and thanks were due also to the deans and hospital staffs who had co-operated.

After Sir W. ARBUTHNOT LANE had presented the treasurer's report, which showed a credit balance of £1,430, the reports were adopted, and the council, which consists of about 90 representatives of the individual members and 37 representatives nominated by institutions and recognized as corporate members, was elected.

The revised constitution, the result of the labours of a committee which was appointed a year ago, was approved without discussion; it defines the rules of procedure for the admission to membership and the appointment of the executive committee and subcommittees and their terms of reference. The meeting closed after passing a resolution which placed on record the indebtedness of the Fellowship to the President and Council of the Royal Society of Medicine for their continued generosity in placing rooms freely at the disposal of the Fellowship.

CONFERENCE ON BIRTH CONTROL.

A NEO-MALTHUSIAN and Birth Control Conference, stated to be the fifth international gathering of its kind, though the first to be held in London, took place from July 11th to 15th. It was organized by the Malthusian League—a body which has now changed its title to "The New Generation League for Human Welfare through Birth Control," thereby suggesting a broader platform than the old Malthusian theory. The president of the conference was Mr. C. V. Drysdale, D.Sc., and among the vice-presidents were Sir James Barr, Sir Bryan Donkin, Sir W. Arbuthnot Lane, and Sir Archdall Reid. Dr. W. J. Robinson, president of the American Society of Medical Sociology, and two or three medical men from Holland, Germany, and Sweden were also present.

The conference did its work in six sections, which discussed the domestic, economic, moral, hygienic, international, and medical aspects of the question. The fifty papers ranged over such problems as migration, organized labour, psychological factors, and the coloured races, and it was interesting to observe the way in which people who were sharply divided on other subjects found a common meeting place in birth control. The matter was pressed to the same conclusion from the point of view of the socialist and the individualist, the nationalist and the internationalist, the feminist and the one indifferent if not antagonistic to feminism, the rationalist and the minister of religion, though it should be added that, with one or two exceptions, including a New York rabbi, ministers of religion held aloof.

The Conference Dinner.

In connexion with the conference a public dinner was held to celebrate the centenary of birth control, which was dated from the publication in 1822 by the radical reformer, Francis Place, of *The Principle of Population*, a book which was said by one speaker to have been banned from the British Museum Library, but we find that this is not so. Sir W. ARBUTHNOT LANE, in a brief speech at the dinner, said that much had been heard about the neo-Malthusian theory, but the theory would be of little or no use unless women could be provided with a fool-proof method of protecting themselves against impregnation. The medical profession seemed to have no knowledge of preventives, or, where there was not complete ignorance, there was dislike of the subject, an attitude which had unfortunate results.

Professor E. W. MCBRIDE brought the good wishes of the President (Major Leonard Darwin) and the majority of the council of the Eugenics Education Society, though he said that on the executive of the body founded by Francis Galton there were sentimentalists, some of them occupying high positions in the medical world, who were opposed to birth control. He believed that eventually the State would come to adopt some form of compulsory sterilization. Professor McBride expanded his ideas in one of the sessions, when he gave an address on birth control and biological law. There would always be a residuum of people, he said, so utterly careless of the welfare of the State as to breed, regardless of consequences, and look to the State to support their children. The only remedy for such conduct was sterilization. If the practice of voluntary birth control became more widespread, then an enlightened public opinion would be formed which would support measures of compulsory sterilization against those who persisted in having families at public expense.

Medical Section.

In the Medical Section Dr. NORMAN HAIRE spoke on the sterilization of the unfit. He believed that there was little hope of enlisting public sympathy in England in favour of legislation on this subject, but many would support a campaign in favour of voluntary sterilization. Sterilization was not synonymous with castration; it involved only the interruption of the continuity of the spermatic ducts in the male or the oviducts in the female; the individual was not unsexed. The procedure had been practised in some of the American States with apparent success, and from Indiana 1,200 cases were reported. The most important indication for sterilization was disease in either parent which might seriously prejudice the offspring; another was disease in the woman which would render pregnancy dangerous or harmful. Many would be of opinion that a further indication was stupidity or carelessness leading to reckless overfecundity.

Dr. W. H. B. STODDART gave an address in the same section on some psychological aspects of the birth control problem. He said that the methods of preventing conception were three in number: abstinence, coitus interruptus, and the use of contraceptives. The use of contraceptives he believed to be harmless; abstinence was harmless in the absence of sexual stimulation; coitus interruptus was harmful. The anxiety neurosis was largely attributable to repressed sexual desire, which had been pushed into the subconscious, and there gave rise to fears which spread themselves out far beyond the original cause, and also to physical manifestations, including increased frequency of heart beat and respiration, liability to attacks of asthma and air hunger, loss of appetite, and definite malposition of the stomach, consequent indirectly upon the effect of fear on the endocrine glands, especially the increased flow of adrenaline from the suprarenal. In persons who practised coitus interruptus the stomach was commonly low down in the pelvis, causing abdominal fatigue. This applied to both sexes, but especially to the female, for the male in coitus interruptus was usually gratified. The speaker went on to refer to Professor Arthur Thomson's paper in the BRITISH MEDICAL JOURNAL of January 7th, in which it was suggested that the male ejaculate, through absorption by the mucous membrane of the uterus, had other effects upon the female than, possibly, to render her pregnant. It had been his (Dr. Stoddart's) custom in patients who suffered from the anxiety neurosis, due to the use of contraceptives which prevented the ejaculate from penetrating the female tissues, to give tablets of orchitic and prostatic extract by the mouth to supply the secretion which was not obtained in other ways.

Other speakers were Dr. ANTON NYSTRÖM of Sweden, who pleaded for the definite introduction of this subject into the medical curriculum, and also for a state guarantee of contraceptives; and Dr. FRANCES HUXLEY, who dealt with birth control from the standpoint of a woman gynaecologist. A resolution was passed affirming that the provision of hygienic birth control instruction should become part of the recognized practice of the medical profession, and should be given especially at hospitals and public health centres to which the poorest classes and those suffering from hereditary disease or defects applied for relief.

The sessions of the conference were held in private, but the claims of birth control were advanced at a large public meeting presided over by Mr. H. G. WELLS, when the principal speaker was Mrs. MARGARET SANGER, president of the American Birth Control League. Mrs. Sanger gave an account of her recent visit to Japan, where, apparently, birth control ideas have found wide acceptance. In spite of the hostility of the Japanese Government, she believed she had interested large popular audiences in this subject. An organization is being established in Japan, and another in India, and one is projected in China. In some Western countries, notably France, according to Mr. Wells, the cause has suffered a positive set-back, owing to the development of nationalism. It was announced by Dr. C. KILLICK MILLARD at the same meeting that it was proposed to form in this country a medical society for the study of birth control, the main object of which would be to consider the best means of controlling conception.

In the Medical Section, of which he was president, Dr. KILLICK MILLARD reported on the replies received to a set of questions which he and Dr. Binnie Dunlop had addressed to some members of the medical profession in London and the provinces, chiefly gynaecologists. The first question was whether contraceptive methods were to be approved in the case of married couples who, on health or economic grounds, felt it necessary to limit the size of their families. To this question thirty-seven replied that such approval should be given, some of them added emphatically, while thirteen were against, and fourteen gave only a qualified approval, insisting, for example, that the couple should have had one or two children before contraceptive methods were applied, or that the grounds should be limited to health. Another question as to which contraceptive was believed to be most satisfactory elicited many diverse replies, some advocating certain pessaries and others douches, but it was worthy of note that only four voted for the check pessary, in spite of its advocacy in certain quarters as the best means of prevention. A third question was whether the theory was to be credited that the reduced birth rate in civilized countries was not really due to voluntary restriction by the use of contraceptives, but to retardation in natural fertility. To this question thirty-six replied that in their opinion the theory was not to be credited and eighteen that it was. The persons circularized were asked further whether they believed that chemical pessaries —such as quinine pessaries—when they failed to prevent conception might injuriously affect the resulting offspring. To this forty-six answered in the negative, three in the affirmative; of the three two gave no example in point, and the third knew of a case where such injury was alleged, but had no proof as to the cause. Dr. Millard thought that from these replies it could not be claimed that the medical profession condemned contraceptive methods, but he pleaded that the profession should awaken to this subject because, while it was silent, the solution of problems essentially delicate was being committed to laymen.

Conference at Deptford.

The results of another set of questions sent out to members of the profession and others were submitted at another conference on birth control, held during the same week at Deptford Town Hall, by Dr. C. S. THOMSON, medical officer of health for the borough. He said that he had been endeavouring to elicit the opinions of some medical officers of health and clergymen on the use of contraceptives, and whether, if their use was approved at all, they should be limited to the unfit. Six replies were received from clergymen, four of which were against the procedure. Of the eighteen replies received from medical officers, seven were in favour of birth restriction, five against, and six non-committal. Some of the medical officers considered the use of contraceptives unnatural, immoral, and physiologically wrong; others, while not objecting to their use, said that the real trouble was that they were used by the wrong people.

A NEW building for the Surgical Clinic at Munich has recently been opened under the direction of Professor Sauerbruch.

IT was announced by the secretary of the Millbank Fund, at a meeting of the National Tuberculosis Association in Washington, U.S.A., that between 300,000 and 400,000 dollars of the income from the investment of 10,000,000 dollars will be set aside by the Millbank Fund to demonstrate in several districts how tuberculosis can be controlled in American communities. This demonstration has been prompted by the successful results of the tuberculosis investigation conducted for the past five years at Framlingham, Massachusetts, by the National Tuberculosis Association.

THE HOSPITALIZATION OF THE SCOTTISH ASYLUM SYSTEM.

IN his presidential address given to the Medico-Psychological Association of Great Britain and Ireland at its annual meeting in Edinburgh on July 19th, Professor G. M. ROBERTSON added another to the many appeals he has made for the conversion of the asylum with its prison stigma into the special hospital with its more human, its more sympathetic, and its more medical tone and atmosphere. A leader in these pages a couple of weeks ago* sketched in outline the various stages the proposals for reform had passed through before the draft bill to enable persons suffering from incipient mental disease to be treated in public or private mental asylums without certification was introduced into Parliament as a Government measure. It recorded the incidents in the long history of the close interest which the British Medical Association has taken in the treatment of incipient insanity; it told of the efforts of the Association's Medico-Political Committee on behalf of the care of the feeble-minded and of their success in one direction by the passing of the Mental Deficiency Act; it recalled the many bills, such as the Lunacy Acts Amendment Bill of 1905, Sir John Batty Tuke's bill for the early treatment of mental disease, the Voluntary Mental Treatment Bill of 1914, and the bill of the following year for the early treatment of mental disorder of recent origin resulting from wounds, shock, etc., which had not become Acts even when designed (as the last mentioned certainly was) to meet the exigencies of the war; and it touched more than once on the valuable lead which had been given by the experience gained in the management of the insane under the Scottish law and by the endeavours of Professor G. M. Robertson of Edinburgh. If there be any truth in the physiological and pharmacological theory of the summation of stimuli it will surely be visible in the rapid and uneventful passage of the bill now to be proposed by the Minister of Health. Whether this come to pass or not the phenomenon of the gradual hospitalization of the asylum which the President of the Medico-Psychological Association described last Wednesday has been a great historical event well worthy of record in the progress of the management of insanity.

In his introductory sentences Professor Robertson pointed out that the dominating motive which had for more than a generation directed the activities of the asylum authorities in Scotland had been the desire to make the asylum in that country an institution inspired by the same exalted principles and conducted on the same medical and nursing methods as those which existed in our great general hospitals. That ideal was simple, tangible, and high, for the voluntary hospital was the most perfect embodiment of practical humanitarianism and science, and it occupied a unique position among medical institutions. To reach the ideal meant to transform the asylum into a hospital for the treatment of a special disease. This was the meaning of the phrase "the hospitalization of the asylum" first used in 1902.

There had been difficulties in the way, and tradition in asylum management had been hard to overcome. The asylum had its origin in the prison, and neither in its construction nor in its control had it yet quite got free of its origin. The single rooms of the asylum took one's thoughts back to the cells, and so did the practice of confining patients in them. The exclusion of women and their non-employment in nursing the sick and the infirm in the male wards of asylums was another result of the past; it was a perpetual reminder that the original conception of an asylum was less that of a hospital for the care and treatment of a special disease than that of a safe place of detention for the custody of a dangerous class. The public had found mental patients unfit to be at large; it had officially through a judge or magistrate deprived them of their liberty; it had ordered their detention in special institutions primarily for the purpose of safety; it had, of course, expected them to be cared for kindly, but it had scarcely realized how difficult the task was, forgetting that the deprivation of liberty itself was a hardship. The public, therefore, had swung to and fro between sympathy for persons "illegally detained or harshly treated," and indignation that insane and dangerous people were not more stringently shut up.

"As liberty is the most cherished prerogative of the human being, it is not without good reason that persons of unsound mind are deprived of it. The measures required for their care very often involve questions of life and death. Every melancholic patient at one stage or another of his illness is a case of potential suicide; every patient suffering from hallucinations of hearing and from delusions of persecution is a possible homicide; while the weak-minded and the impulsive are all liable to commit irresponsible acts of a dangerous character. Were such patients treated with a sole regard to their wishes and feelings, tragedies would happen which would move the public to indignation. It has in a large measure escaped such experiences, and in consequence it seems probable that a section of it does not realize that any danger exists at all. The medical superintendent of an asylum is a man who walks on the edge of a precipice, who lives over a powder magazine, and he is wise to err on the side of safety."

In Scotland the medical superintendent was the sole authority over all that related to the medical care of the patients, and he alone admitted or discharged them. Quite properly he was controlled by a board of able men, and, naturally, expense had to be considered at every step, a fact which checked and limited extreme medical and philanthropic aspirations. It would be immensely for the benefit of patients in rate-aided asylums if the number of the staff were doubled; but public authorities would not submit to the extra expenditure. Many difficulties had to be overcome before reforms could be instituted, and prejudice against innovation was a recognized barrier; but the General Board of Control (the Government Department controlling the application of the lunacy laws) had done well in encouraging advances by refusing to stereotype an official system of treatment or of asylum construction. The Board had given freedom of initiative and scope for individual action to medical superintendents in Scotland, and many of them had struck out new lines in such directions as the amusement of the patients, their degree of freedom, the nursing of them, the clinical or laboratory investigation of their maladies, and the like; the Board had made known advances in one asylum to the workers in others.

The great and outstanding result of the innovations introduced by medical superintendents in various places had been the gradual abolition of the prison features of Scottish asylums. Professor Robertson's description of the order and manner of the changes which marked the transition from prison-like asylum to modern hospital for mental diseases was masterly. Soon after 1857 it was thought that the attachment of "airing courts" to asylums marked a noteworthy advance in asylum construction; so in a sense it did, but it was really a feature inherited from the prison, and therefore it had to be replaced by permitting the patients to walk freely about in the grounds round the institution, an advance due to the initiative of a single superintendent. Mechanical restraint by various means (strait-jackets, hobbles, muffs) was obviously the prison tradition again.

Then came the era of "non-restraint," for which all honour is due to Gardiner-Hill and Conolly; but they modified rather than abolished restraint, for Conolly invented the padded room—defined as "a room of which the floor is a bed and the four walls are padded"—and he used confinement in single rooms, euphemistically termed "seclusion." These improvements came in their turn to be abused, and about twenty years ago statistics of their employment in different asylums were published, and very soon, in Scotland, seclusion and padded rooms began to disappear generally. Another relic of the prison idea was the locking up of troublesome patients at night and the lack of any nocturnal treatment of mental symptoms even in convalescent cases; gradually the substitution of continuous personal attention for the mechanical safeguard of a locked and shuttered room was introduced, and instead of one night-watchman for both male and female sides of an institution a night staff sufficiently large for the efficient care of all patients who might require it was introduced. The locked doors of the asylums of the past increased the prison atmosphere: Sir John Tuke observed that in an asylum suitably constructed this unpleasant feature could be almost eliminated, and so the "open-door system" came into being, was extended to the use of detached villas without obvious institutional characters, and finally took the form of permission to go about freely on parole. The "boarding-out system" in country districts marked a further departure from the prison idea, and at the present time over 2,000 unrecovered but harmless patients were being so cared for in Scotland. "Here," said Professor Robertson, "our practice has gone as far away as it possibly could from any suggestion

* BRITISH MEDICAL JOURNAL, July 8th, 1922, p. 51.

of prison or restraint, and the unrecovered patient is replaced in a natural home under more familial and domestic supervision."

Professor Robertson passed next to the consideration of the introduction of hospital features into the asylum set free from its prison-like characters. In this matter the late Sir Thomas Clouston was a distinguished pioneer in Scotland. He taught that an asylum should be an institution for medical observation and treatment, and to enforce this idea his favourite recommendation was that every asylum should be provided with a separate hospital block; this would bring with it a medical atmosphere. At the present time the majority of modern Scottish asylums were provided with these separate and distinctive hospitals. Another advance towards the hospital idea was made by Dr. Campbell Clark in 1880 when he began courses of instruction for nurses and attendants, and published his *Handbook for Attendants on the Insane*; next came the Medico-Psychological Association's certificate of proficiency in mental nursing. "Thus," said Professor Robertson, "thirty years before the recent Act for the registration of nurses was passed, mental nurses through the agency of this association enjoyed practically all the advantages now being conferred for the first time on hospital and other nurses."

The next great movement towards the hospital idea was the bringing of women prominently into the staffing of the asylum. The appointment of hospital nurses as matrons of the female divisions of asylums not only improved the quality of the sick nursing, but also placed educated women with medical training and instincts at the head of the female staffs. At first these women had not the special knowledge necessary for the safe and proper care of the insane; but by the appointment of three hospital nurses as assistant matrons and their training in mental nursing and asylum management proper candidates for the matronship in Scotland were soon forthcoming. Matrons and assistant matrons who were possessed of hospital training quickly brought about the replacement of asylum methods by hospital ones equally good or better, and many features alien to hospitals thus disappeared. Then the change began to affect the male wards of the asylum; women with their "mothering" instincts began to find their way into the male portion of the institution, first as wives of charge attendants as "auxiliary female care," then in complete nursing charge during the day, then during the night (with auxiliary male care when it was necessary), and finally as matrons over a whole asylum (male and female sides), whereby "the analogy to the general hospital was rendered more complete." Professor Robertson's remark is: "A woman continues to exercise much the same subtle influence over an insane man who is not actually delirious and confused as she does over one who is supposed to be in his right mind." One scents a trace of humour here.

The approximation to the hospital idea was seen also in the increase in the numbers of the medical staff and in the more thorough study of the physical disorders associated with insanity by all the scientific methods of investigation in use elsewhere. Higher education in the science of psychiatry and the giving of diplomas in psychological medicine were other signs of approach to the hospital character. Curiously enough the State had taken little or no interest in the last-named advance in the treatment of insanity, although everything which makes for more successful treatment and for more effective prevention of insanity will save the State money. "One mental disorder alone—namely, dementia praecox—probably cost the country more in maintaining its helpless victims for life than any other single disease." Finally, hospitalization was needed in respect of the laws under which Scottish asylums were administered. The law was archaic: it was designed to suit a form of social life which no longer existed and which medical science and the art of nursing had left far behind. Professor Robertson's words on this matter were weighty:

> "As the Board of Control has admitted the necessity for a new Act, let us hope that it will be framed on medical lines, and particularly that under its provisions it will be possible for any unfortunate person who is sick in mind to obtain the medical treatment and nursing his illness requires, without first being legally branded a lunatic, as at present, and then committed to detention by a judge or magistrate, as if he were a species of criminal. After all, such a procedure is not very different from the trial of the sick person in Samuel Butler's *Erewhon*, who, suspected of being consumptive, was apprehended and tried as a common criminal would be with us for burglary. Not till the cruel anachronism of these laws is removed, which after sixty-four years' service have outlived their purpose, will the asylum shed its last prison features, be cleansed of the prison taint, and be free to develop along purely medical and hospital lines. That it can be removed without evil consequences following is demonstrated by the amazing situation that has come to pass in Scotland, where the majority of private patients paying the higher rates of board are actually being admitted to the Royal asylums, not under medical certificates and judicial orders, as was intended by our well-meaning legislators of other days, but as voluntary patients. Why should it not be possible for the rate-aided poor to enjoy this privilege? Their need is just as great as those endowed with wealth, and, being without means, they are less likely to be the victims of designing persons or plots. But, as a matter of actual fact, no one, rich or poor, has ever been found by our courts of law to have been wrongly detained in a Scottish asylum."

Professor Robertson concluded his address by pointing out that the essential features in the changes in the asylum system of Scotland during the last two generations could be crystallized into two simple yet comprehensive ideas or formulae. These were, first, the abolition of prison features, which were an inheritance from the past, by the substitution of continuous personal attention; and secondly, the hospitalization of the asylum by the introduction, as completely as possible, of the methods employed in hospitals for investigating, treating, and nursing disease, which still remains the ideal for the future. A revolution had actually occurred, but it had come so gradually that it had had none of the inconveniences associated therewith; indeed, so quietly had it come and so insinuatingly that many were putting forward the query, "Had the type of insanity changed to one of milder symptoms?" Where were the raging maniacs of the past? The answer had unfortunately to be that their raging had been in some measure the result of the treatment accorded to them.

Professor Robertson did not close on the note of prevention, but it could be detected, if listened for, in every part of his address. How much better it would be for everyone if all cases of non-congenital insanity could be treated in the incipient stage; how much more economic in every sense for the country. Even congenital mental disorders may prove amenable to prevention, but in their case prevention must begin with the parents and be ante-natal in time. This address is an additional and a potent argument in favour of the long looked for Incipient Insanity Bill.

TRANS-ATLANTIC RHINO-LARYNGOLOGY.

PROFESSOR BIRKETT'S SEMON LECTURE.

THE Semon Lecture, under the auspices of the University of London, was delivered on July 12th by Professor H. S. BIRKETT, C.B., M.D. (Dean of the Faculty of Medicine of McGill University, Montreal), who took for his subject "The development of trans Atlantic rhino-laryngology." The Vice-Chancellor of the University (Mr. H. J. WARING, F.R.C.S.) presided.

Professor BIRKETT began with a personal tribute to the man in whose memory the lecture was founded. It was now more than thirty years ago since he first met Sir Felix Semon, and during many visits to this side of the Atlantic the acquaintance ripened into friendship. Semon jealously guarded and strenuously upheld the dignity of the specialty to which he devoted his life. He was frank and decided in his opinions, and as an investigator in the field of laryngology and a contributor to its literature he stood pre-eminent.

The close ties existing between the English-speaking countries made it desirable that each should know more of the work done by the others, in this as in other directions. To the United States belonged no small share in the discovery and development of the fundamental principles which had placed laryngology in the foremost rank of specialties. Both the origin of the specialty and the conception and development of its important principles had been the product of the splendid speculative and inventive genius of America. He quoted Sir William Milligan as having stated that to their American colleagues past and present much credit was due, not only for pioneer work, but also for the persistent way in which they had kept the laryngological flag flying.

The lecturer then went on to instance the earliest papers appearing in medical publications in the United States on the subject of laryngology, dating from 1860 or thereabouts. The man who was entitled to be regarded as the father of American laryngology was Horace Green, who, at the time (about 1832) when the laryngoscope was regarded with more or less scepticism, foresaw its possibilities, and stated that he was confident that if the instrument could be brought into

general use the profession would be able to cure diseases which up to then had been frequently overlooked. Green had graduated in medicine in 1834, and he was the first medical man on the American continent to devote himself exclusively to diseases of the respiratory tract. In 1846 he published a treatise on diseases of the air passages. The name of Louis Elsberg must be associated with that of Horace Green. Elsberg was described as the most accomplished laryngologist in America, and he became the first president of the American Laryngological Association. The earliest classical textbook on the subject of foreign bodies in the air passages was by Samuel D. Gross, and was published in 1854 in Philadelphia. With the more general use of the laryngoscope the literature on the subject enlarged rapidly. In 1864 Elsberg brought out a little monograph on *Laryngoscopal Medication*, which was the first trans-Atlantic work on mirror laryngology. At that time Elsberg was lecturer on diseases of the larynx in the University of New York. For comprehensiveness and originality the treatises of J. Solis Cohen (from 1872 onwards) had not been beaten in American laryngological annals.

The first laryngological society was founded in New York in 1873. It was "A Society for the Study of Affections of the Larynx, Pharynx, and Adjacent Parts," and was merged later into the Section of Laryngology of the New York Academy of Medicine. Afterwards, under the presidency of Louis Elsberg, the American Laryngological Association was formed. As for instruction in laryngology, the first official teaching was inaugurated in Philadelphia (by J. Solis Cohen) and at Harvard, in both cases about 1866; but Elsberg, in the autumn of 1861, had started lecturing on laryngology in the medical department of the City of New York University, and this was the first regular instruction given in America. The Metropolitan Throat Hospital in New York was established in 1874. In 1875 the Harvard Medical School included laryngology as a separate subject in its curriculum. The first journal dealing with the subject was the *Archives of Laryngology* in 1880, but only four volumes were published. The photography of the larynx was successfully accomplished by French in 1882—a triumph of ingenuity, skill, and persistence. Another epoch-making advance was the introduction of Joseph O'Dwyer's intubation method in New York in 1885; and to Fletcher Ingals, Chevalier Jackson, and others much credit was due for work on bronchoscopy. Ingals was the first to make use of the distant method of illumination, and Jackson perfected this method.

Passing to rhinology, the lecturer said that the development of this subject was more gradual than the other, and it was only through the large number of contributions to literature by American workers that encouraging advance was at length obtained. An important piece of study was the removal of intranasal obstructions; the first to carry out this removal was J. Solis Cohen. W. H. Day was the first to call attention (in 1882) to the connexion between hay fever and nasal diseases. J. N. MacKenzie drew attention to the fact that in the nose there was a well-defined sensory area capable of producing an excitation which found expression in a series of reflex phenomena. The lecturer instanced other advances which had come from across the Atlantic, notably the discovery by W. H. Betts of New York, in 1896, of the value of extract of the suprarenal capsules as a haemostatic—a useful adjuvant in controlling bleeding in nasal operations.

As for undergraduate teaching in America, the subjects of laryngology and rhinology had been for some years past compulsory in the curriculum of most of the leading American universities. Instruction was given for one year, and an examination in this subject, written and oral, was held. Licensing bodies required an examination in these special subjects. Post-graduate teaching was first introduced in New York in 1877, and was gradually advanced until at the present time some of the chief medical centres had their own post-graduate institutions, in which excellent facilities were afforded for this special line of work. It was realized by Elsberg as far back as the seventies that the education of the specialist would require years of study, and a committee which was appointed to consider the matter made certain recommendations, which were adopted by the societies interested in the subject. The principal recommendation was that the student must have a minimum training of eighteen months in full-time work on this special subject, one half of the day to be devoted to the clinical study of cases in a well-equipped out-patient department of a general or special hospital, and the other half to the fundamental sciences and allied work, carried on in equally well-equipped laboratories. The early custom on the other side of the Atlantic was to unite otology with ophthalmology, and with the development of rhinology all three specialties were in many instances combined. In the late seventies an attempt was made to dissociate rhinology and otology from ophthalmology, and for the past twenty years, in most of the medical schools, these subjects were associated with laryngology in one chair. On looking back over the broad outline one could not but be impressed by the immense strides which had been taken, more particularly during quite recent years. Once the avenues of research were opened, the work and experience of one observer after another formed an arch through which gleamed ever-widening fields for investigation.

A vote of thanks to the lecturer was proposed by Sir J. DUNDAS GRANT, who said that American laryngologists had set a stimulating example. He also paid a tribute to Semon, who, he said, was one of the greatest of teachers—encouraging, stimulating, and often disturbing, through the activity to which he called his colleagues and pupils. Sir STCLAIR THOMSON, in seconding the vote of thanks, appreciated the lecturer's backward view. Those who looked forward saw only one way of advance; those who looked backward saw more than one. The vote of thanks was heartily accorded, and the Vice-Chancellor then handed Professor Birkett the Semon medal.

THE ROYAL ARMY MEDICAL CORPS.

UNVEILING OF THE MEMORIAL TABLET.

THE tablet placed in the nave of Westminster Abbey in memory of the officers and warrant officers, non-commissioned officers, and men of the Royal Army Medical Corps who fell in the great war was unveiled with simple ceremony by the DUKE OF CONNAUGHT, colonel-in-chief of the Corps, at noon on July 13th. The congregation which filled the nave included Princess Christian, and many representatives of the Government, the army, and the medical profession. The large number of ladies present were, in almost all instances, relatives of those who had died.

The tablet, an illustration and brief description of which appeared in our last number, is on the north wall, just beneath some large and tasteless memorials of eighteenth-century valour. It strikes a quieter note, in harmony with the tomb of the "Unknown Warrior" a few yards distant, and yet it arrests the eye, like the window recently dedicated to the fallen of the Royal Flying Corps, which is almost opposite.

The service under the grey arches was all the more impressive because there was no sermon or address; the occasion was allowed to speak for itself. The majority of those present wore either military uniform or academic robes, and these, with the white surplices and red cassocks of the choir, made a spectacle of colour not often seen even in the Abbey. The assembly in such a setting of so many men of distinction in arms and in medicine might well have formed the subject of an historical canvas. The music was provided by the band of the Welsh Guards, which before the service began rendered selections from Grieg, Sullivan, and Bizet, and also accompanied the hymns with which the service opened and closed; these were Charles Wesley's "Jesu, lover of my soul," the first verse omitted, sung to the tune "Aberystwith," and Bishop Walsham How's "For all the saints who from their labours rest," to the tune "Sine nomine." A word of praise is due to the party of buglers who, at the end of the ceremony, from behind the high altar, sounded "The Last Post" and "Réveillé." Those piercing notes must have brought to many present the most emotional moment of the service.

A guard of honour of the R.A.M.C. was posted outside the west door, and was inspected by the Duke of Connaught on his arrival. On entering the Abbey His Royal Highness was received by the Dean (Bishop Ryle) and the clergy and conducted to a seat in front of the tablet. After some opening prayers by the precentor the "Contakion of the Faithful Departed" was sung, and then the Duke, removing from the tablet the Union Jack which had covered it, said:

I have the honour to unveil the tablet erected in Westminster Abbey by the Royal Army Medical Corps in memory of the 743 officers and 6,130 warrant officers, non-commissioned officers, and men of the corps who fell in the Great War; and at the same time to announce that in due course the names of those who fell will be engrossed in a Golden Book, now being prepared, that will be kept

among the treasures of the Abbey in the Chapter House. The Royal Army Medical Corps has generously assigned the sum of £10,000 to the fund for the restoration and maintenance of the structure of Westminster Abbey.

The DEAN dedicated the tablet in the following words:

To the glory of God and in the name of Jesus Christ, we dedicate this memorial in proud and thankful memory of those officers and men of the Royal Army Medical Corps who fell in the Great War; in the name of the Father, and of the Son, and of the Holy Ghost.

The DEAN added:

On behalf of the Dean and Chapter of Westminster Abbey we desire to express our gratitude for the great and magnificent donation of £10,000 by the R.A.M.C. to the Westminster Abbey Restoration Fund, and it will be our pride and pleasure, in time to come, with the proper consents, to preserve in the Chapter House the great Golden Book among the treasures of Westminster Abbey.

Following the dedication a special collect was said:

O Almighty Father, Lord of heaven and earth: Vouchsafe, we beseech Thee, to accept this offering at our hands for the adornment of Thy house of prayer, and in thankful memory of our brethren of the Royal Army Medical Corps who fell in the Great War; and grant that as we dedicate this gift to Thy glory, so we may devote our lives to Thy service, for Jesus Christ's sake. Amen.

This was followed by a sixteenth-century prayer:

O Lord, support us all the day long of this troublous life, until the shades lengthen, and the evening comes, and the busy world is hushed, the fever of life is over, and our work done. Then, Lord, in Thy mercy, grant us safe lodgeing, a holy rest, and peace at the last, through Jesus Christ our Lord. Amen.

After the National Anthem the Duke of Connaught and Princess Christian proceeded to the Chapter House to inspect that part of the Golden Book which has already been prepared. The execution of this work has been entrusted to Mr. Graily Hewitt, one of the most talented scribes of the day. The book will consist of between two hundred and three hundred pages, each of them richly illuminated and bearing a different design, and the whole will be elaborately bound. The work is expected to take eighteen months to complete.

The Duke of Connaught was accompanied from the west door to the site of the tablet, and again, after the service, to the Chapter House, by Lieut.-General Sir John Goodwin (Director-General of the Army Medical Service), Lieut.-General Sir G. M. W. Macdonough (Adjutant-General), Lieut.-General Sir Arthur Keogh, G.C.B. (late Director-General), Lieut.-General Sir W. Launcelotte Gubbins (late Director-General), Lieut.-General Sir Arthur Sloggett (late Director-General), and other officers of the Service.

Amongst those present in the congregation were Sir A. Mond, Field-Marshal Lord Methuen, the Right Hon. F. E. Guest (Secretary of State and President of the Air Council), Vice-Admiral Sir Robert Hill (Director-General, Medical Department, R.N.), Lieut.-General Sir Travers Clarke (Quartermaster-General to the Forces), Lieut.-General Sir William Peyton (Military Secretary to the Secretary of State for War), Major-General G. D. Jeffreys (Commanding London District), Sir Herbert Creedy (Secretary of War Office and Army Council), Sir Charles Harris (Permanent Head of the Finance Department of War Office), Bishop Taylor Smith (Chaplain-General), Major General Sir R. Havelock Charles (Medical Adviser to the Secretary of State for India), Major-General Sir A. P. Blenkinsop (D.D.M.S. Eastern Command), Sir Lionel Earle (representing the First Commissioner of Works), Sir Donald MacAlister (President of the General Medical Council and Vice-Chancellor of the University of Glasgow), Mr. H. J. Waring (Vice-Chancellor of the University of London), Dr. J. G. Adami (Vice-Chancellor of the University of Liverpool), Sir Humphry Rolleston (President of the Royal College of Physicians, London), Sir Anthony Bowlby (President of the Royal College of Surgeons of England), Sir David Wallace (President, Royal College of Surgeons, Edinburgh), Sir W. Wheeler (President, Royal College of Surgeons in Ireland), Sir George Makins (President, Fellowship of Medicine), Mr. James Berry (President, Medical Society of London), Sir Archibald Garrod (Regius Professor of Medicine, University of Oxford), Lord Dawson of Penn, Sir Berkeley Moynihan, Bt., Sir Charles Ballance, Dr. Andrew Balfour, C.B., Dr. W. F. R. Burgess (Master, Society of Apothecaries), Sir John MacAlister (Royal Society of Medicine), Professor Lyle Cummins (Welsh National University Medical School), Sir Charters Symonds, Sir L'Arcy Power, Sir Robert Jones, Sir John Lynn-Thomas, Sir James Galloway, Mr. Warren Low, C.B.

The British Medical Association was represented by Professor David Drummond (President), Dr. R. A. Bolam (Chairman of Council), Dr. Wallace Henry (Chairman of Representative Meetings), Dr. G. E. Haslip (Treasurer), Major-General Sir Richard Luce, Rear Admiral Sir Percy Bassett-Smith, Dr. T. Ridley Bailey, Dr. J. W. Bone, Dr. H. B. Brackenbury, Mr. W. McAdam Eccles, Lieut.-Colonel R. H. Elliot, Dr. A. C. Farquharson, M.P., Mr. N. Bishop Harman, Mr. E. B. Turner, Sir Dawson Williams (Editor, BRITISH MEDICAL JOURNAL), Dr. N. G. Horner (Assistant Editor), Dr. Alfred Cox, O.B.E. (Medical Secretary), and Dr. A. Courtenay Lord and Dr. A. D. Macpherson (Assistant Medical Secretaries).

Among the army medical officers present in addition to those mentioned above were: Major-General Sir G. B. Stanistreet (Deputy Director-General), Major-General Sir William B. Leishman, Major-General Sir W. G. Macpherson, Major-General Sir Hayward R. Whitehead, Major-General C. E. Pollock, Major-General Sir W. Russell (late Deputy Director-General), Major-General Sir G. D. Bourke.

Representatives of the Red Cross Society and the Order of St. John were present; also the matrons-in-chief of the Queen Alexandra Nursing Service and the Territorial Nursing Service, and Colonel C. R. Tyrrell, C.B., and Major E. B. Waggett, D.S.O., (joint secretaries of the Memorial Committee).

All the medical faculties of universities in the United Kingdom not actually represented in the Abbey sent letters of regret, stating that the reason for inability to send a representative was that vacation had already commenced.

THE CAUSE OF INFLUENZA.

As influenza is among the foremost of the epidemic diseases that periodically ravage humanity, any further light upon its etiology is welcome, and the report to the Medical Research Council by Professor James McIntosh of his careful researches during the later stages of the pandemic of 1918–19 will be read with much interest and no little profit by a large circle of readers.

Professor McIntosh's object was to define the cause of influenza, and he outlines, in the first place, the conditions that must be fulfilled before a virus can be accepted as the cause of a disease, and refers to Koch's postulates. He points out, however, that in the case of influenza many difficulties arise in arriving at a correct conclusion. These are due in part to the present lack of clinical means of sharply differentiating influenza, but in part also to the difficulty of being sure that clinical changes and pathological lesions produced experimentally in animals constitute true influenza.

In illustration of the former point he remarks that when influenza first appeared among our troops in France in the spring of 1918 it was not at once recognized either by clinicians or by bacteriologists, and was put into the category of P.U.O.—pyrexia of uncertain, not of unknown, origin as stated.

Bacteriology.

The methods used by Professor McIntosh in the investigation described in his report consisted first of examining films of exudates—chiefly of sputum—after staining by Gram and using fuchsin or neutral red as counterstain. Having obtained information in this way as to the kind of bacteria predominant, he employed for culture either Matthews's trypsinized blood agar, boiled blood agar, serum agar, or ordinary agar. For preserving *B. influenzae* alive he employed boiled blood agar, and he gives exact particulars of its preparation. His results are summarized in a series of tables. When controls and cases not characteristic of the outbreak were excluded, he found the percentage incidence of various micro-organisms in forty-eight cases examined in the acute stage of influenza to be as follows:

B. influenzae	75 per cent.
Streptococci	33.3 ,,
Pneumococci	27.0 ,,
Gram-negative cocci	27.0 ,,
Staphylococci	22.2 ,,

The bacillus of Pfeiffer was also found in the nasopharyngeal secretion of 13 out of 17 cases of early acute uncomplicated influenza, in the sputum of 58 out of 70 cases of influenzal bronchopneumonia, and in 36 out of 48 cases examined after death from influenza. In a special series of 16 cases examined *post mortem* Pfeiffer's bacillus was found 15 times. In the pus of 12 empyemata it was detected twice.

Serological observations were found to furnish additional evidence of the close association between Pfeiffer's bacillus and influenza, since no less than 12 out of 19 unselected convalescents were found to give positive complement fixation with *B. influenzae*; and out of 22 similar serums tested for agglutinin to *B. influenzae* 8 gave positive results in dilutions up to 1 in 100.

It is important to note that serum of influenza convalescents when administered to acute cases in doses of 10 to 30 c.cm. was found to benefit the patients very considerably, and a number of temperature charts are given to illustrate this good effect. It is pointed out, however, that claims have been made that normal serum can produce a similar result, and Professor McIntosh refrains from expressing an opinion as to the mechanism of this therapeutic action.

Morbid Anatomy and Histology.

The morbid anatomy and histopathology of influenza is briefly reviewed and the statement made that epidemic influenza is essentially an acute inflammation of the respiratory tract with involvement of the lungs, the most striking

feature being a marked engorgement of the trachea and bronchi and a general congestion and oedema of the lungs. In sections bacteria were usually to be found in large numbers in the mucous exudate, on the surface of the mucosa, among the epithelial cells, or in the submucous exudate. In many instances only small Gram-negative bacilli (*B. influenzae*) were to be seen. In others numbers of different cocci were to be found, mostly in association with *B. influenzae*. In the lymphatics of the bronchi *B. influenzae* could be found either alone or associated with pneumococci or streptococci. It is noteworthy that the earliest changes in the lungs were found to be a dilatation of the capillaries and a pouring out of clear albuminous fluid, which in places completely filled the alveoli; apart from red corpuscles, cellular elements and bacteria of any kind were rare in this alveolar exudate at the early stage, though bacteria were present in the bronchi. These results agree with those of previous observers.

Pathological Experiments.

Having demonstrated the close association of *B. influenzae* with the disease in the manner described, Professor McIntosh attempted to produce influenza experimentally, and here, as might have been anticipated from his opening remarks, the chief difficulty was encountered. A study of the pathogenicity of *B. influenzae* for laboratory animals showed that this organism was fatal to mice when administered intraperitoneally in doses of 1 to 4 milligrams of a young culture. He then investigated the production of a soluble toxin by *B. influenzae*, and confirmed the observations of Julia Parker and others that a soluble toxin can be demonstrated in young cultures of this organism. The toxicity of filtered cultures to rabbits varied considerably, but as a rule 5 to 6 c.cm. of the filtrate was sufficient to make the animal seriously ill. In the case of guinea-pigs the average lethal dose was 2 to 3 c.cm., but with some batches of toxin the lethal dose was 0.5 c.cm. or less. Perhaps the most suggestive train of symptoms were those produced in an animal when death occurred in four or five hours. Immediately after injection the animal became collapsed, its fur ruffled, and its temperature subnormal. Some time later a discharge of frothy mucus was observed at the nose, and there was slight diarrhoea. *Post mortem* the lung lesions in rabbits and guinea-pigs were so constant that the toxin, it is thought, may be assumed to have a definite selective action on the respiratory mucous membrane. The lesions produced by the toxin were found to bear a close resemblance to those present in man when an attack of influenza causes death.

In discussing the nature of the soluble toxin formed by *B. influenzae*, Professor McIntosh expresses the opinion that its action is distinct from that of protein degradation substances produced by the growth of bacteria in the medium, and in support of this view he adduces the circumstance that the toxin is thermostable, and also that it produces in animals such definite histological changes. Further, he looks on the fact that it excites the production of specific antitoxin as convincing evidence on this point. It is interesting to note, however, that normal rabbit serum has some neutralizing action on the toxin, and further that it has not yet been found possible to neutralize multiple doses of the toxin with the antitoxin. It is possible that the toxin is a mixture, and Professor McIntosh is hopeful about further developments in this relation.

Having defined in this way the intimate association of Pfeiffer's bacillus with influenza, and the capacity of its toxin to reproduce experimentally the chief lesions found *post mortem* in that disease, Professor McIntosh endeavoured to produce influenza experimentally in monkeys, rabbits, and guinea-pigs. He used both filtered and unfiltered material from cases. The former series included both nasal and post-nasal secretion, blood, and freshly isolated pathogenic cultures of *B. influenzae*, and the filtered material comprised the filtrates of nasal washings, throat washings, and lung juice. The results were quite negative, with the exception of a doubtful result produced in a monkey by intratracheal insufflation with a culture of *B. influenzae*.

Dr. McIntosh sums up the results of this investigation in the following conclusions:

Conclusions.

1. The predominating micro-organism in the secretions and lesions of the late epidemic was *B. influenzae* (Pfeiffer), which could be demonstrated in over 80 per cent. of the cases.
2. Other members of the catarrhal group of bacteria (pneumococci, streptococci, Gram-negative bacteria, etc.) were much less frequent.
3. Serological examinations, in particular the complement fixation test, confirmed an infection by *B. influenzae*.
4. Epidemic influenza, as shown by the pathological lesions, is essentially an acute inflammation of the respiratory tract.
5. In the early stages the lung changes are more suggestive of a toxic action than bacterial. In the later stages the lung picture may be complicated by other microbic infections.
6. The therapeutic effect of injections of the pooled serums of influenzal convalescents, even in severe cases, was very encouraging.
7. *B. influenzae* is a pathogenic microbe, producing its main lethal effect by means of a soluble toxin.
8. The experimental inoculation of animals with filtered cultures of *B. influenzae* produced pathological changes which presented a close resemblance to the changes found in man.
9. Injections of *B. influenzae* vaccine can produce in susceptible individuals a typical influenzal attack of short duration.
10. No evidence was obtained in support of the view that influenza is due to a filter-passing virus.

Interpretation.

Professor McIntosh criticizes severely the evidence that has been brought forward in support of the view that a filter-passing organism is concerned in the causation of influenza, and he does not scruple to reject it *in toto*. He also contends that the minute bodies observed in cultures of filtered material derived from influenza cases have not been differentiated with certainty from inanimate particles present in all albuminous fluids. His survey of the literature, however, does not include the whole of the evidence; we do not, in particular, find an account of the recent work of Olitsky and Gates of the Rockefeller Institute, to which reference has been made in our columns (September 17th, 1921, p. 455).

While Professor McIntosh has demonstrated in a very convincing manner the important part played by Pfeiffer's bacillus, and thrown much light on the mode of its pathogenic action, he has not yet succeeded experimentally in producing with certainty influenza. This circumstance, and the admitted frequency of Pfeiffer's bacillus in conditions other than influenza, are difficulties that will cause many to hesitate before accepting Professor McIntosh's able and earnest plea for regarding the bacillus of Pfeiffer as the primary and essential cause of epidemic influenza. It is to be hoped that the forthcoming discussion on the bacteriology of influenza at the Glasgow meeting of the British Medical Association will throw further light upon this important subject.

ROYAL MEDICAL BENEVOLENT FUND.

A MEETING of the Committee was held on June 13th; 40 cases were considered and £540 granted to 38 applicants. The following is a summary of some of the cases relieved:

M.R.C.S.Eng., aged 60. Owing to an accident to the knee he had been out of employment since leaving ship service, and appealed to the Fund to help him to get back to Australia. Voted £25 towards passage money.

Daughter, aged 61, of M.D. St. Andrews who died when applicant was a child. She is a trained nurse and served through the Boer war, after which she opened a nursing home in South Africa, but had to give this up, and then took up private nursing. Came to England in 1914, and was refused by the War Office on account of age. Afterwards served abroad with various Red Cross units during the war. She now has £1 5s. a week from the United Service Fund, and a little help from friends. Voted £10 in twelve instalments.

Widow, aged 57, of M.B.E lin. who died suddenly in 1918. Applicant has been living on her late husband's life insurance money and the proceeds from sale of furniture. She tried to make a living by letting the rooms in her house, which is heavily mortgaged, but owing to ill health had to give this up. Applicant has gone back to her native place and is living in a cottage. Voted £5.

Widow, aged 94, of medical man who died in 1887. She is now confined to her house. She has only the old-age pension, and her rent amounts to 6s. a week. Voted £25 in twelve instalments.

Widow, aged 85, of L.R.C.P. and S.Edin. who died in December last. Applicant lives with married daughter, who only has £2 a week. Her late husband was a pensioner on the Fund at £26 a year. Voted £5.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters J. Symonds, K.B.E., C.B., F.R.C.S., at 11, Chandos Street, Cavendish Square, London, W.1. The Royal Medical Benevolent Fund Guild is overwhelmed, in these days of exorbitant prices for clothing and household necessaries, with applications for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for secondhand clothes and household articles for the benefit of the widows and children who in happier times would not have needed assistance. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

THE new building for the medical school at Porto Alegre, Brazil, is approaching completion, and classes will probably be held during the coming year in the building; the staff includes some forty professors and assistants.

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SATURDAY, JULY 22ND, 1922.

THE HOSPITALIZATION OF ASYLUMS.

IN a leading article published on July 8th (p. 51) it was pointed out that medical opinion is unanimous that the present lunacy laws are urgently in need of reform, and, in view of the fact that legislation to give facilities for the treatment of early cases of insanity will shortly come before Parliament, we do not hesitate to emphasize again the necessity for the removal of certain restrictions which at present constitute a barrier to the adequate treatment of mental disorder in its incipient stages. It must be remembered that the impulse towards reform did not originate from the general public; it originated from the psychiatrists themselves, who have been fully alive for a number of years to the limitations imposed upon them by the law. It is a significant fact, and one which cannot be ignored, that those who actually live amongst the mentally sick, and who are thus peculiarly cognizant of their needs, express themselves in no uncertain way as to the necessity for a policy more in harmony with the aspirations of modern medicine.

This dissatisfaction with existing conditions finds forceful expression in the presidential address delivered by Professor George M. Robertson before the Medico-Psychological Association on July 19th. As will be gathered from the report published at page 134, he began by saying: "The dominating motive which for more than a generation has directed the activities of the asylum authorities in Scotland has been the desire to make the asylum in that country an institution inspired by the same exalted principles and conducted on the same medical and nursing methods as those existing in our great general hospitals." Fortunately the aspirations thus expressed have been actually put into practice, and though Professor Robertson does not refer to his own work on behalf of the insane, the Scottish asylums owe a great deal to his courage, initiative, enthusiasm, and energy; they have been important factors in bringing the institutions to their present state of high efficiency. It is of interest in passing to note that some twenty years ago Professor Robertson expressed his ideals for the future of asylums in words almost identical with those quoted above.[1] It must be a source of much satisfaction to him to feel that his desires have been so largely realized.

In the course of his broad survey of the changes which have been introduced into the Scottish asylum system Professor Robertson observes with truth that their effect has been so great that they might be described as revolutionary were it not that the process of transformation has been so gradual. The prison features of the asylums have been largely abolished; an atmosphere has been created which is more medical, sympathetic, and human; and every effort has been made to hospitalize these institutions by the introduction of the methods employed in general hospitals for investigating, treating, and nursing disease. This record of progress is most gratifying, but there is still much to be accomplished before the treatment of mental disorder can reach that high level which psychiatrists regard as desirable. The process of hospitalization is still incomplete, and will so remain as long as the admission of patients in an early and recoverable condition continues to be obstructed by legal technicalities. Professor Robertson spoke most emphatically. "The Scottish asylums are administered under an archaic code of laws," he said, ". . . and not till the cruel anachronism of these laws is removed, which after sixty-four years' service have outlived their purpose, will the asylum shed its last prison features, be cleansed of the prison taint, and be free to develop along purely medical and hospital lines." He goes on to show that there is no necessity whatever to brand a person who is sick in mind legally as a lunatic, and then commit him to detention by a magistrate as if he were a species of criminal, before he can obtain the medical and nursing treatment his illness requires. He points out that such restrictions can be removed without evil consequences, as is demonstrated by the amazing situation that has come to pass in Scotland, where the majority of private patients paying the higher rates of board are actually being admitted to the Royal Asylums without certificates and judicial orders; and he contends, with justice, that it should be possible for the rate-aided poor to enjoy a similar privilege.

Since Professor Robertson has been intimately associated with the development of psychiatry in Scotland, it is natural that he should concern himself more particularly in his address with the asylum conditions which exist in that country. It should now be observed, however, that the aims and ideals he expresses in his presidential capacity are those which animate the Medico-Psychological Association as a whole, and the dissatisfaction he shows with the Scottish legal conditions is felt even more keenly by psychiatrists in England, where the position in respect to the lunacy law is much less favourable than it is in Scotland. The most comprehensive account of the position in England is that provided by Dr. C. Hubert Bond, the retiring President of the Medico-Psychological Association, in his Presidential address of 1921, the subject of which was "The position of psychological medicine in medical and allied services."[2] The possibilities of reform outlined in this address are deserving of close consideration, and may be regarded as authoritative; they carry much weight, since Dr. Bond writes not only as a psychiatrist who has taken a leading part in urging the hospitalization of English asylums, but also as a Commissioner of the Board of Control in this country. His experience enables him to appreciate the necessity for certification in certain cases, whether it be for the protection of the person and estate of the patient or for those with whom he is associated, and it also enables him to give a balanced estimate of the extent to which a relaxation of legal restrictions is possible. Dr. Bond laid emphasis on the meagre extent to which voluntary treatment for mental disorder is permitted in this country—at present, of course, only in licensed houses and registered hospitals—and strongly advocates an extension to county and borough mental hospitals of the system of voluntary admission. "The system of voluntary boarders in registered hospitals has," he said, "worked well; and, judging by the remarkable and probably exceptional circumstance that, at that moment, of the number of cases admitted into the oldest of these hospitals those received as voluntary boarders are as many as those admitted under certificates, the system finds favour. The explanation as to the difference between registered hospitals and licensed houses as respects stringency of requirements for voluntary admission is historical and accidental, and is not based on the respective merits of the two forms of institution; it would, indeed, be hard to find valid reason why the simple and formless procedure should not be available for voluntary admission to licensed houses, and equally

[1] *Journal of Mental Science*, vol. xlviii: "Hospital Ideals in the Care of the Insane."

[2] *Journal of Mental Science*, vol. lxvii.

hard—except as to chargeability questions—with respect to county and borough mental hospitals to which . . . no voluntary admission is permitted. As to this denial to public mental hospitals of what would be an unquestionable boon to poorer persons who are mentally ill and desire treatment, it is useful to remember that in Scotland voluntary boarders are admissible to these institutions."

It may here be mentioned that though all psychiatrists are agreed that the treatment of the mentally deranged is handicapped by antiquated legal restrictions, there is some divergence of opinion as to the status and function of asylums in the future. On the one hand it has been suggested that an entirely new form of hospital should be created for the treatment of incipient insanity. Dr. E. Goodall has been a vigorous advocate of a scheme along these lines; he would completely divorce the new clinics which he visualizes from the existing asylums and would develop them in the closest relation with the general hospitals. He feels that this is the only way in which psychiatry can hope to gain organic union with medicine as a whole, and he regards the suggestion that early psychoses should be treated in the asylums as "one of those compromises which are so dear to the Anglo-mentality." On the other hand, a number of psychiatrists share the aim which appears to be in the mind of Professor Robertson, whose wish is to convert the existing asylums into real hospitals by taking the general hospital as its model. It is considered to be much more practicable to bring these institutions, which have been specially built and designed to meet special features in the treatment of a particular disease, up to highest medical and scientific standard than to create entirely new institutions. The respective merits of these two schemes cannot here be discussed; there would seem to be no reason why separate clinics such as Dr. Goodall describes should not develop in course of time, but as far as asylums are concerned every legal facility should be granted to enable them to develop along hospital lines in the fullest sense of the term.

Thus in regard to the immediate future we would urge the necessity for extending the privilege of voluntary admission to all mental hospitals and to all classes of the community. We may be quite sure that both the general public and the medical profession will give their full support to any legislation which has for its aim the removal of those barriers which at present obstruct the treatment of patients in the early and curable stages of mental disorder.

POST-GRADUATE EDUCATION IN LONDON.

THE reply of the Minister of Health to the deputation which had an interview with him last week as to post-graduate medical instruction in London is not, we think, to be taken as a final answer. The proposal put before him, as will be seen from the full report (published at page 130), may be summarized as a request for financial assistance in maintaining a central office in London for the organization of post-graduate medical instruction, so that the best use might be made of existing facilities, which, as we have frequently shown, are very considerable. Sir Alfred Mond's answer to the request was in fact rather ambiguous; on the one hand he made play, as was to be expected, with the need for public economy, but on the other he practically told the deputation that its proposals were too modest. The matters on which he seemed to think the deputation not bold enough in its demands were in the main two: one was that the duties intended to be assigned to the dean or principal officer were not sufficiently responsible; and the other that the proposal to make a general hospital a part of any post-graduate medical institution in London seemed to have been dropped.

Sir George Makins, who spoke as President of the Fellowship of Medicine, had assumed as beyond argument that an adequate scheme of post-graduate education could not be financed from voluntary resources and fees alone, and the point has been so fully discussed in its bearing on higher education of every sort that he was no doubt justified in making this assumption. But Sir Alfred Mond called the principle in question when he suggested that the expense should be borne by the people who were to benefit, and asked why Americans and others who wanted information should not pay for it. It is true that he immediately qualified this by adding "in considerable proportion if not the whole." Sir Alfred Mond's second line of criticism had been answered in anticipation both by Sir George Makins and Sir Richard Luce, who spoke for the British Medical Association. The latter had pointed out that there was already a considerable demand among practitioners in this country, and that it would certainly develop further were the opportunities for obtaining such education made easier and the conditions more attractive. Sir Alfred Mond also, as has been said, called in question the view, more or less reluctantly accepted by members of the deputation, that the establishment of a central post-graduate hospital in London was not a practicable proposal. When promising the deputation to assist its propaganda in any way he could, he said that he appreciated the importance of the case laid before him, and expressed the hope that the scheme for a central hospital would not be considered as in any way dead. After this intimation the Association will probably think it desirable to go into the matter again and consider fully the arguments now advanced in favour of making a hospital an integral part of any post-graduate medical school or institution in London.

The medical profession has come to have confidence in Sir Alfred Mond's powers of getting things done when he is convinced that they ought to be done, and will not quarrel with him for proceeding with this matter at this time with caution. But caution too greatly prolonged becomes a fault; delay has already diminished some of the advantages with which London started a few years ago, and the question is not one which concerns London alone. The position in some other great teaching centres is better than in London, but in no instance has the provision for post-graduate medical instruction reached the full development which may be hoped for.

THE CONTROL OF GLYCOSURIA BY THE ISLETS OF LANGERHANS.

A NOTE on the pancreas in relation to diabetes was communicated to the meeting of the American Physiological Society at the end of last year and a brief report was printed in the *Proceedings*.[1] It described certain work done in the Physiological Department of the University of Toronto by Professor J. J. R. Macleod and Dr. F. G. Banting and Mr. C. H. Best. They started from the hypothesis that the reason why the usual extracts of pancreas do not satisfactorily demonstrate the presence of an internal secretion acting on carbohydrate metabolism was because the internal secretion was destroyed by the digestive enzymes also present in such extracts. That the islets might be the organ of pancreatic internal secretion was first suggested by Laguesse, a French anatomist. In 1912 Kirkbridge found that healthy islets were present in the atrophic tissue of the gland after ligation of the ducts, and in 1917 Kamimura confirmed the fact that the islets remained normal, and stated that the animal did not develop glycosuria as long as the islets were left intact.

[1] *American Journal of Physiology*, lix. p. 479. A full preliminary paper by Banting and Best is published in the February issue of the *Journal of Laboratory and Clinical Medicine*.

It is well known that excision of the pancreas produces in dogs severe and fatal diabetes. The conclusions to be drawn from previous work were considered to be that the secretion produced by the acinous cells of the pancreas is in no way connected with carbohydrate utilization, that all injections of whole-gland extract have been futile as a therapeutic measure in defects of carbohydrate utilization, and that the islands of Langerhans are essential in the control of carbohydrate metabolism. In order to test the hypothesis they had evolved the Toronto workers took advantage of the fact that acinous cells degenerate in seven to ten weeks after ligation of the ducts, whereas the insular cells were at that stage at least unaffected. Ten weeks after ligation of the pancreatic ducts the degenerated gland was removed and extracted with ice-cold Ringer's solution. This extract when injected intravenously or subcutaneously invariably caused marked reduction of the percentage of sugar in the blood and the amount of sugar excreted in the urine of diabetic animals. Extracts of liver, spleen, or boiled extract of the degenerated pancreas were found to have no effect. They found also that glucose given intravenously or by the mouth is retained by diabetic animals if adequate doses of the degenerated pancreas are also administered, and that the clinical condition of the animal is improved; the estimation of the amount of haemoglobin gave the same result before and after the experiment. Rectal injections were not effective. The neutral extract kept in cold storage retained its potency for at least seven days. Subcutaneous injections were found to have a less rapid but more prolonged effect. If these experimental observations prove clinically applicable to man, clearly a magnificent contribution to the treatment of diabetes will have been made. Ever since it was first shown that diabetes commonly depended on a pancreatic lesion some such remedy as that now described has been hoped for and sought after. We trust that before long sufficient clinical results will be forthcoming to show whether the sanguine expectations the Toronto observations will raise are well founded.

THE NATURAL HISTORY OF THE MOUNT EVEREST REGION.

NEWS reached London on Saturday last that the third and final attempt to scale the summit of Mount Everest had been given up. The leader, General Bruce, reported a disastrous avalanche which killed seven porters and nearly caused the death of Mr. Mallory, Dr. Somervell, and Mr. Crawford. The expedition has in consequence been abandoned; but Mr. Finch and Captain Bruce's achievement of reaching an altitude of 27,200 feet is some compensation for the failure to conquer the greatest mountain in the world. These recent events give special interest to the July issue of the *Geographical Journal*, which contains Sir Francis Younghusband's presidential address at the anniversary meeting of the Royal Geographical Society, an editorial general note on the Mount Everest Expedition, 1922, and a paper on the natural history of South-Western Tibet by Dr. A. F. R. Wollaston, the medical officer and naturalist of last year's reconnaissance expedition under Colonel Howard-Bury. As Sir Francis Younghusband remarks, the 1921 expedition thoroughly reconnoitred the approaches to Everest and settled beyond dispute the easiest line of assault on the summit; but besides having achieved its main object it accomplished much other work of value. A general survey of the whole unmapped region, a detailed survey of the immediate environs of Mount Everest, and a geological reconnaissance of the area were made. Dr. Wollaston formed a valuable collection of the mammals, birds, and plants, and together with other members of the party brought back beautiful and interesting photographs. His paper on the natural history of the region, read before the Society in February, is now published in full with pictures. A remarkable feature of Tibet is the tameness of the wild animals, and out of respect for the Buddhist religion the party had to refrain from shooting in the neighbourhood of monasteries and villages where birds mostly congregate; nevertheless, he made a considerable collection of mammals and birds. A large number of dried plants and seeds also were brought back, and many of the seeds have been sown in English soil. Naturalists will enjoy Dr. Wollaston's charming account of these mountainous regions. Above 14,000 feet the vegetation is stunted: "This is Tibet proper, and henceforward you may travel for many hundreds of miles and hardly see any plant more than a few inches high. . . . Animals are few and far between." The only mammals commonly seen are the small mouse-hares or pikas, sometimes called whistling hares, though they are not hares and do not whistle. During an excursion to one of the principal passes leading from Tibet to Nepal the party was astonished to find at 12,000 feet an abundance of very active leeches. An interesting plant found between 17,000 and 18,000 feet is a dwarf blue hairy delphinium. The Tibetans dry the flowers of this plant and use them as a preventive against lice, but without much success. "When a Tibetan dies his body is undertaken by the professional butcher, who cuts it up and exposes it on the hills to be disposed of by the vultures and wolves. A body tainted with the delphinium flowers is unpalatable to the scavenger, and it is well known that a man must have been wicked in life whose body is rejected by the vultures and wolves." Animal life above 17,000 feet is scanty. Birds of a few species visited the camps, and mice of some kind came into the tents at 20,000 feet and ate the food, but escaped without being seen. The tracks of fox and hare were seen still higher, and at about 21,500 feet the explorers came across the tracks of the legendary "snow men" which afforded such fun to so many people. There can be no doubt, Dr. Wollaston thinks, that these tracks were made by a wolf loping along at a good gait; the snow was soft, and the tracks had got partially merged together. The paper ends with a note about the smells of Tibet—some vile and others delightful. It was discussed from various points of view by Sir David Prain, then Director of the Royal Botanic Gardens, Kew; Sir Sidney Harmer, Director of the Natural History Museum; Mr. W. R. Dykes, Secretary of the Royal Horticultural Society; Mr. N. B. Kinnear; and Mr. Freshfield. The President closed the proceedings by thanking Dr. Wollaston for his most interesting address, and congratulating him upon the general good health of the party under his charge.

THE FOUNDER OF THE NEWCASTLE MEDICAL INSTITUTE.

LAST year, during the annual meeting at Newcastle-on-Tyne, Sir Clifford Allbutt opened the Medical Institute given to the profession in the district by Dr. J. W. Smith, of Ryton-on-Tyne, a former President of the North of England Branch of the British Medical Association, as a memorial to his son, Dr. J. Wilkie Smith, a young man of great promise who died some seven years ago. In the course of his remarks on this occasion Sir Clifford Allbutt said that he had felt all his life, especially in younger days, the isolation of medical men, particularly in country districts. Town men also were busy, their hours uncertain, and they too got isolated, with the consequence that misunderstandings arose which could be cleared away if they met each other socially in an institute such as that established by Dr. J. W. Smith. The founder hoped that in addition to the social side the institute would foster scientific interests also, and Sir Clifford Allbutt concluded by observing that it was a great pity that a good deal of knowledge possessed only by general practitioners never got into any books, simply because authors were ignorant of it. Professor David Drummond, who presided at the ceremony, spoke of the great value of such an institute to members of the profession in and about Newcastle. Its advantages have been widely appreciated, and many medical and social meetings have been held there. To mark their gratitude for so generous a gift the members have cordially accepted the suggestion of the committee of the institute that a portrait of Dr. J. W. Smith should be painted and hung within the building. The work has been undertaken by

Mr. Hodgson Campbell of Newcastle. A small fund has been opened, to which members of the institute have subscribed, but the committee think that there are other medical men and women who may wish to express their appreciation of Dr. Smith's effort to further the interests of the profession and promote that state of harmony and goodwill which is so desirable and essential. Donations, from 10s. 6d. to 2 guineas, will be gratefully acknowledged by the honorary secretary, Dr. Stanley Robson, the Medical Institute, 7, Windsor Terrace, Newcastle-on-Tyne.

EXPENDITURE ON ALCOHOL IN HOSPITALS.

A PAINSTAKING analysis of the expenditure on alcohol at two large voluntary hospitals over a period of more than a century was given by Mr. C. J. Bond in his presidential address to the Society for the Study of Inebriety on July 11th. The hospitals in question were the Leicester and Derby Royal Infirmaries, and the period was from 1810 to 1920. In both the histories there were certain more or less coincident periods in which the average yearly expenditure on alcohol for each patient admitted rose to a comparatively high figure or fell to a comparatively low one. In 1810 at Leicester the amount spent on alcohol was £530 for 700 patients and staff, or about 15s. per head. A relatively high expenditure on alcohol continued until 1825 at Derby and 1835 at Leicester; this was the lean and troubled period after the Napoleonic wars. The consumption of alcohol fell between 1830 and 1860, and rose again between 1860 and 1880, and in these twenty years the high-water mark of alcohol consumption, both institutional and national, was reached; the period corresponded to great industrial activity and prosperity. From 1880 to 1900 there was a low consumption of alcohol, due, Mr. Bond believed, to the fact that the years of temperance propaganda were at last bearing fruit. A further sharp decline took place from 1900 down to the time of the war. During the first part of the war, and in the case of Leicester down to the spring of 1918, the consumption of alcohol in the institutions was almost negligible, but both institutions showed a marked post-war reaction, which continued until the trade depression of 1921. This reactionary rise after the war years was almost entirely due to the increased consumption of wines and spirits. It had been argued that the rise could be accounted for by the admission and treatment of a considerable number of soldiers, many of them with severe wounds, but the continuation of the increase at Leicester after the period when soldiers were no longer admitted was not in harmony with this suggestion. Altogether there was a concurrence between institutional and national expenditure on alcohol, making it evident that hospital practice was not yet founded on scientific knowledge as to the action of alcohol on the human organism. It could not be claimed that the hospitals had acted as pioneers in moulding public opinion or influencing national conduct with regard to the use of alcohol, although they did seem to have discountenanced it as a beverage, especially in later years. But the use of alcohol in the treatment of disease by medical officers in hospitals had largely followed national habit and custom. Periods of high national consumption of alcohol coincided generally with periods of high institutional expenditure on alcohol. It must be said, however, that if the voluntary hospitals had not acted as pioneers in temperance reform, they had done salvage work in rescuing the victims of alcoholic excess. He had been at some pains to ascertain the magnitude of the call made on the accommodation and the medical and nursing services at Leicester Royal Infirmary from November, 1910, to April, 1913, by persons who were treated as patients there while under the influence of drink. During this period 243 drunken patients were treated, or an average of about 100 a year, and if this held good for the whole country—and Leicester was a soberer town than most—it meant that 10,000 people were admitted to the hospitals every year as a direct result of intoxication. This, of course, was only part of the levy which the drinking habits of the people exacted from the hospital services. Hospital wards and out-patient departments were largely used by those whose diseases and disabilities were the result of alcoholic indulgence. In conclusion, Mr. Bond expressed the opinion that the time had come for hospital authorities and administrators to speak out plainly on this matter. The public should know the magnitude of the financial burden and the great loss of institutional time, money, and service which occurred in remedying the injury done by ignorant, selfish, and anti-social conduct. It was also necessary that hospitals up and down the country should cease to be swayed by fashion and tradition in the matter of the use of alcohol in the treatment of disease.

THE FOULERTON PROFESSORSHIP AND STUDENTSHIPS.

THE Council of the Royal Society gives notice that it has created the Foulerton Research Professorship, and that the appointment of a professor will be made on the advice of a committee of Fellows called "The Foulerton Research Fund Managing Committee." The stipend will be £1,400 a year, and the duty of the holder of the professorship will be to conduct, in a place approved by the committee, such original researches in medicine or the contributory sciences, on lines approved by the committee, as shall be calculated to promote the discovery of the causes of disease and the relief of human suffering. The appointment will be in the first place for five years, but may be renewed for further periods of not more than five years at a time. The normal retiring age will be 60, but a professor may be continued in exceptional cases for a further specified period. Arrangements are being made for superannuation under the Federated Superannuation System for Universities, and the professor will be required to devote the whole of his time to research. The holder of a paid academic or other scientific appointment may, however, be nominated, provided the committee is satisfied that the duties of such other appointment occupy only a subsidiary portion of the applicant's time and that its retention would not interfere with the discharge of the duties of the professorship as essentially a whole-time research appointment. In such case the committee would recommend a reduction of the stipend, of such amount, however, as shall not reduce the total annual income of the professor from his paid appointment and from the fund below £1,400. The appointment will only be made if candidates of sufficient distinction present themselves. The Royal Society also gives notice that it is prepared to appoint one or more Foulerton research students, the stipend being £700 a year. The duties of a Foulerton research student will be to conduct researches in medicine or the contributory sciences under the supervision and control of the committee, to whom the student will be required to report from time to time on the progress of his work. The studentship will be for three years, but may be renewed from year to year until it has been held for a maximum period of six years from the first award. In recommending a person for appointment as student, the committee will have in view the expressed wish of the donor that awards should be made especially to young workers. The stipend is £700 a year, and a studentship will normally be regarded as a whole-time appointment, but in exceptional cases the holder may be allowed to retain a paid teaching post; in that case the committee may recommend the payment of such stipend as it may think fit. A candidate may be called upon to show that he or she is and that his or her father and paternal grandfather are, or were at the date of their respective deaths, of British nationality. Unless the Council directs to the contrary, arrangements will be made for the superannuation of a Foulerton studentship under the Federated Superannuation System for Universities. Applications for the Professorship or Studentship, for both of which members of either sex will be eligible, must reach the Royal Society not later than October 31st next. Further particulars will be found in our advertising columns, and full particulars can be had on application to the Assistant Secretary of the Royal Society, Burlington House, W.1.

THE ROCKEFELLER FOUNDATION IN 1921.

IN his review of the Rockefeller Foundation's work for 1921 Mr. George E. Vincent,[1] the President, sums up its various activities under twenty-one heads, of which the following may be quoted: The formal opening of a complete modern medical school and hospital in Pekin, and assistance to twenty-five other medical centres in China; the provision of 157 fellowships in hygiene, medicine, physics, and chemistry to representatives of eighteen countries; campaigns against malaria, hookworm disease, and yellow fever; the appropriation of 3½ million dollars to rebuild and reorganize the medical school and hospital of the Free University of Brussels; and the supply of experts in medical education and public health for counsel and surveys in many parts of the world. These services were carried out partly by the Foundation directly, but chiefly through its departmental agencies—the China Medical Board, the International Health Board, and the Division of Medical Education. He quotes the aphorism of a successful American health officer, "Cure looks through the microscope, prevention through the telescope"; he anticipates the time when a case of illness will be regarded as a reflection upon the doctor's vigilance, and refers to the four stages in the progress of preventive medicine: first, the control of the physical environment through pure water, milk, and food supplies, and adequate sewage and refuse disposal; then control of diseases due to other factors, such as those of industrial origin; thirdly, personal hygiene; and lastly the dawning phase of economic, social, and mental influences. Mental hygiene is a part of public health, and the National Committee for Mental Hygiene has been liberally financed by the Rockefeller Foundation. An account is given of the School of Hygiene and Public Health at the Johns Hopkins University, which is supported by the Rockefeller Foundation, and supplements the activities of the Harvard school, where such pioneer work in industrial medicine has been carried out. With the support of the Rockefeller Foundation a "pay" clinic at moderate cost was opened by the Cornell University Medical School in New York in November, 1921, a complete diagnostic examination being provided for 10 dollars on cases sent there by medical men. On the day that the clinic opened there were 700 patients, and since then the number has steadily increased. The results in the prevention of yellow fever in South America are most encouraging, but one of the Rockefeller Institute workers, Dr. Howard B. Cross, died of the disease on December 26th, 1921, at Vera Cruz, where the Public Health Laboratory has now been named the Howard B. Cross Laboratory. The full report of the Rockefeller Foundation, including detailed reports of the International Health Board and the China Medical Board, for 1921 will when published later be sent to libraries, and may be obtained on application by other institutions or individuals.

WHITE-LEAD POISONING.

AMONG industrial diseases lead poisoning is perhaps that to which most persistent attention has been paid not only in recent times but in past ages. Until the end of the last century more attention was paid to the treatment of those affected than to the prevention of the ailment, but after the appointment of medical inspectors on the staff of the Factory Department of the English Home Office investigations were made with a view to the adoption of preventive measures. In 1908 Mr. Herbert (now Lord) Gladstone, who was Home Secretary at the time, appointed a departmental committee to consider the dangers attendant on the use of lead in the manufacture of china and earthenware and to report how far these could be obviated or lessened. A large number of potteries were visited by the committee, who were assisted in their inquiry by the evidence among others of representatives of the manufacturers and of the workpeople. After two years' painstaking investigation a most valuable report was issued, containing recommendations many of which have been adopted, with the best results. At later dates departmental committees have investigated and reported on the danger attendant on the use of paints, lead compounds, etc., and a more recent inquiry into the same question has been held by the New South Wales Board of Trade at the instigation of the Minister for Labour and Industry of that colony, which asked for a report as to whether white lead as used in the painting industry is so injurious to painters and other workmen engaged in the industry as to make it expedient or necessary to regulate, restrict, or prohibit its use in paints or pigments. The report of the Board, which has recently been issued, is an elaborate document of nearly 800 pages; much of this space is given to recording the 10,000 questions addressed to the fifty-two witnesses called before the Board and their replies thereto. Among the witnesses were seven medical practitioners, several Government officials, mining engineers, master painters, and operatives. The conclusion the Board came to was that lead as used in the painting industry—that is, lead principally in the form of a basic carbonate, or white lead—is a substantial cause of injury and death to painters and other workmen engaged in the painting industry, but that immediate prohibition or restriction of the use of white lead is not the appropriate remedy for these evils. There would, in the opinion of the Board, be no more reason for the prohibition of the use of white lead in paints than there would be for the prohibition of lead mining or indirectly for the prohibition of the mining of precious metals that are to be found in geological association with lead bodies. "Lead poisoning being a preventable disease, it would indeed be a desperate situation if the only means of prevention were the abolition of the use of lead." The report refers at some length to the regulations of the Home Office in force in this country, and recommends the adoption of somewhat similar regulations in New South Wales. Special stress is laid on the importance of attention to personal hygiene, of a properly arranged dietary, and the avoidance of intemperance. The part to be played by employers in reducing dust risks and providing efficient ventilation of factories, and installing suitable washing appliances and meal rooms, is emphasized, and proper medical supervision is recommended.

[1] *The Rockefeller Foundation: A Review for 1921.* By George E. Vincent, President of the Foundation. New York. 1922. (Pamphlet, pp. 59. No price.)

THE R.A.M.C. MEMORIAL.

THE ceremony at the unveiling at Westminster Abbey of the memorial tablet to the officers and men of the Royal Army Medical Corps, which included, of course, a large number who were serving with temporary commissions or for the period of the war, was singularly simple, beautiful, and impressive, and few who were present can have been unmoved. The words spoken by the Duke of Connaught, Colonel-in-Chief of the Corps (as reported elsewhere in this issue), in making the gift of money to the Abbey and unveiling the tablet, and of the Dean in acceptance, were few, simple, and well chosen. The service consisted of a few prayers, two well-known hymns, and the singing of the contakion of the faithful departed. The music was exquisitely rendered by the Abbey choir, reinforced by the band of the Welsh Guards. As the term "contakion" is not well known in this country, we may explain that in the sense in which it is here used it is defined in the *New English Dictionary* as a short ode or hymn in praise of a saint which occurs in the offices of the Eastern Church. The invention of the contakion form is traditionally ascribed to St. Romanus, who lived about A.D. 500. The primary meaning of the word appears to be a roll or scroll, and the legend is that the saint was inspired to compose these hymns by the eating of a roll or scroll. But this is merely popular etymology, and it has been suggested that the word is, in fact, a corruption of the Latin *canticum*, a song. The words of the contakion sung on July 13th were as follows: "Give rest, O Christ, to Thy servant with Thy saints, where sorrow and pain are no more, neither sighing, but life everlasting. Thou only art immortal, the Creator and Maker

of man: and we are mortal, formed of the earth, and unto earth shall we return: for so Thou didst ordain, when Thou createdst me, saying, Dust thou art, and unto dust shalt thou return. All we go down to the dust; and, weeping o'er the grave, we make our song, Alleluia!"

SPECIAL NUMBER OF THE "GLASGOW MEDICAL JOURNAL."

THE July number of the *Glasgow Medical Journal* contains a number of articles bearing more or less directly on the Annual Meeting of the British Medical Association in that city next week. Of two articles, that by Mr. Mungo Ferguson, on some medical manuscripts and books in the Hunterian Library of the University, and by Mr. Walter Hurst, on some possessions of the Royal Faculty of Physicians and Surgeons, we publfshed a preliminary note last week. The number also contains a paper by Mr. C. R. Gibson, F.R.S.E., on Dr. Charles Morrison of Greenock, who in 1753 published an article entitled "An expeditious method of conveying intelligence." It was, in fact, a method of electric telegraphy devised fifty years before the discovery of the electric current. Morrison's apparatus consisted of twenty-six metal wires, erected between two cottages and insulated from one another by fixing them in blocks of glass at short intervals along the route. At each station the ends of the twenty-six wires were fixed in a piece of solid glass, each wire projecting through the glass to a distance of about six inches; on the end of each was suspended a short vertical wire with a small metal ball at its extremity. Beneath each ball at a distance of about one-eighth of an inch was a letter of the alphabet. With this apparatus Morrison succeeded in spelling out words, and he even went so far as to suggest that the reading might be made by sound if the balls were replaced by bells. Mr. Gibson's account of the early history of electricity is extremely interesting, and he recalls the fact that it was to another doctor—Dr. William Gilbert of Colchester—that the earliest inquiries were due. The number also contains a paper by Dr. G. H. Edington on the "Discovrse" of Maister Peter Lowe, who, as has been mentioned in previous notes in our pages, was the founder in 1599 of the Faculty of Physicians and Surgeons. Dr. Edington gives extracts from Lowe's volume published in 1612 and accompanies them with a number of interesting comments. There are also two reminiscent articles, the one by Dr. Freeland Fergus of Glasgow, who has a good deal to say about "old G.," Professor (afterwards Sir) William Gairdner, President of the Association when it met in Glasgow in 1888; of Sir George Macleod, who on that occasion delivered the Address in Surgery; of Dr. George Buchanan, who was President of the Section of Surgery; of Dr. McKendrick, Professor of Physiology; of Dr. Joseph Coats, Professor of Pathology; of Lord Lister; and of Dr. Finlayson, about whom one uncanny story is told. He would make an unwary student write a prescription and when Finlayson foresaw that the result would be more than ordinarily awful he would have it made up and compel the prescriber to take a dose of his nauseating compilation. The other reminiscent article is by Sir Dawson Williams, Editor of this JOURNAL, who in response to a request to write an article on the "old lions" of the British Medical Association has written some notes on the men who were most active in its counsels during the ten years before and the ten years after its Annual Meeting in Glasgow in 1888.

A VERY attractive *Book of Glasgow* — the work of many hands—has been prepared under the direction of the Printing and Publishing Committee for the benefit of members of the British Medical Association visiting Glasgow during the Annual Meeting. It is a handsome book of more than 250 pages, with many illustrative plates, including as frontispiece a portrait of the President, Sir William Macewen. As the Chairman of the Committee, Dr. William Snodgrass, says in his preface, this is not intended to be in any sense a guide-book to the city and its institutions. The object has been to present a series of impressions of the second city of the Empire, though the university and medical institutions are treated with greater fullness than the word "impressions" might suggest. Next week we hope to discuss in more detail this interesting volume.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Mental Institutions.—Mr. R. Richardson asked, on July 12th, whether the Minister of Health proposed in his new Mental Bill to introduce into England the section of the Scottish Lunacy Act which authorized without certification the compulsory detention of an individual for six months in a mental institution on the word of one doctor without any provision for inquiry or appeal. Sir Alfred Mond said that no such provision was contemplated, nor must he be taken as accepting Mr. Richardson's interpretation of the Scottish Act, the proper construction of which was, he understood, a matter of considerable doubt. In reply to a further question by Mr. Richardson, Sir A. Mond said that on January 1st, the latest date for which figures were available, there were 127 voluntary boarders in licensed houses and 165 in registered hospitals in England and Wales. One hundred and sixty-nine voluntary boarders were certified during 1921, and 421 left of their own accord. The period of residence varied from a few days to several years, and the average was probably under six months. He had not the Scottish figures.

Health and Unemployment Insurance.—In answer to Mr. T. Thomson, on July 12th, Sir John Baird stated that out of every 20s. of the total amount received from all sources into the National Health Insurance Fund it was estimated that 12s. 2½d. went in benefit, 5s. 1½d. to reserve, and 2s. 8d. on administration. The corresponding figures for the unemployment fund were 17s. 10d. in benefit and 2s. 2d. in administration, including the cost of dealing with insured workpeople at unemployment exchanges. The amount estimated to be paid out in unemployment benefit during the current financial year was substantially greater than the total contribution, the balance being met by borrowing.

Finance Bill Amendments.—The Chancellor of the Exchequer, on July 12th, secured the addition of several new clauses to the Finance Bill on the report stage. One of these referred to the entertainments duty. Down to the present the amount of allowance conceded for expenses under the entertainments duty in respect of an exhibition for charity purposes has been 20 per cent. The Chancellor agreed to increase the limit from 20 to 30 per cent. of the receipts, as the smaller figure was not sufficient to encourage such exhibitions being given. Mr. Myers urged that where it could be established that all the net proceeds would go to a charitable object the Chancellor of the Exchequer should keep his hands off the entertainment receipts; to ensure the success of these events artists ought to be engaged. Sir Robert Horne replied that such a concession would leave a large loophole for abuse. People would be willing to give entertainments ostensibly for a charitable object, but from which in the end nothing appreciable would go to charity because everything was taken up by expenses. Another new clause was to the effect that allowances granted by the Minister of Pensions under a Royal Warrant order or order administered by him to widows of members of the naval, military, or air forces of the Crown in respect of their children should not be reckoned in computed income of such widows for income tax. On Clause 36, on July 13th, Sir Robert Horne moved an addition to exempt from Corporation Profits Tax "the profits of a company which is established solely for the advancement of religion or education, and which, under its memorandum or articles of association, is prohibited from distributing any part of its profits to its members." He said that the question had been raised by Mr. Rawlinson, member for Cambridge University, who had presented very cogent reasons. An instance had been given in which an educational organization had borrowed money and set up an institution, and was then compelled to borrow to pay the Corporation Profits Tax, although the institution was being run at a loss. The addition was agreed to. Sir Robert Horne promised to consider, before next Budget, the position of associations incorporated by Royal Charter.

Brief Notes.

Sir Alfred Mond, in reply to Mr. Betterton on July 18th, said he hoped to introduce the Smoke Abatement Bill at an early date.

Sir Alfred Mond has stated that the Ministry of Health is about to issue a memorandum on the Schick method of prophylaxis of diphtheria, containing information as to the proper use of the test. A description of this method, founded on a report made to the Ministry by Dr. S. Monckton Copeman, F.R.S., and Sir G. S. Buchanan, C.B., was published in our columns of December 10th, 1921 (p. 994).

THE Congress of French Alienists and Neurologists will be held at Quimper in the first week of August, when the following subjects will be discussed: (1) Mental disturbances in epidemic encephalitis, introduced by Truelle and Petit; (2) lesions of the central nervous system in motor agitation and in rigidity, introduced by Anglade; (3) welfare of the insane, introduced by Courbon.

THIRD INTERNATIONAL CONGRESS OF THE HISTORY OF MEDICINE.

THIS Congress was opened at the Royal Society of Medicine on Monday morning, July 17th, by the Earl of ONSLOW, Parliamentary Secretary of the Ministry of Health. He was supported on the platform by Sir Humphry Rolleston, P.R.C.P., Sir Anthony Bowlby, P.R.C.S., the Master of the Society of Apothecaries, Major-General Sir F. Smith, Dr. Tricot-Royer (President of the International Society of the History of Medicine), Sir D'Arcy Power (Vice-President of Honour of the Congress), Dr. Charles Singer (President), Sir Arthur Keith, Dr. J. D. Rolleston (General Secretary), Mr. W. G. Spencer, F.R.C.S. (Treasurer), and others. There was an excellent attendance of members and friends.

Lord Onslow's Address.

Lord ONSLOW, after declaring the Congress open, gave an interesting address, the first part of which he delivered in French. He first apologized on behalf of the Minister of Health for his absence that morning. It was a great disappointment to Sir Alfred Mond that urgent public duties prevented him from being able to welcome the members in person. On the part of the Government, of the Minister of Health, and his colleagues at the Ministry he offered a most cordial welcome to the visitors from abroad and wished the greatest success for the Congress. That this was the third meeting of the kind which had been held was in itself a proof that the subject of the history of medicine was becoming more highly appreciated and understood. Previous meetings had been held in Paris and in Antwerp, and he hoped this would not be the last meeting on English soil. The whole subject of the history of medicine was being more highly appreciated—and this was of the greatest importance, for in all branches of human knowledge and experience, in politics and administration, no less than in science, the future could not be guided without both the knowledge and understanding of the past.

Lord Onslow then briefly reviewed the stages in the history of medicine from the time of Hippocrates and of Greek medicine in Rome, through the Middle Ages, when medicine was mainly the province of Orientals, up to the revival of learning in Western Europe after the fall of Constantinople. Here in England, he said, Thomas Linacre might perhaps be counted as the earliest of our great physicians and the founder of modern medicine in this country. Less than a century after his death came the discovery of the circulation of the blood by William Harvey, who laid the foundation of all modern physiology. Thirty years later Thomas Sydenham set out the great principles of observation of disease. In the eighteenth century John Hunter did for pathology what William Harvey had done for physiology; and in the nineteenth century three great steps in medicine were taken by men whose names were household words—Edward Jenner, James Young, and Joseph Lister. There were no greater events in the history of medicine since the age of antiquity than these three discoveries—vaccination, chloroform anaesthesia, and the antiseptic system.

Lord Onslow said in conclusion:

"This interpretation of the history of medicine, which gives a knowledge of its progress in the application of the laws of nature to the treatment of disease, is one of the most fruitful aspects that can be borne in mind. There is one other brilliant chapter of English medicine to which I may briefly refer, and that is the knowledge and application of the principles of preventive medicine. We have now had nearly a century of experience of the application of preventive medicine to the health of communities in this country. We have still much progress to make, but, speaking generally, the science of public health is as advanced in England as in any other country of the world, and future centuries will look back upon this time as a time of progress, when the history of medicine was widened to comprehend the large and urgent questions of sanitation, of the control of the food and water supply, the stamping out of epidemics, of the protection of maternity, of infant and child welfare, and of the establishment of a sanitary cordon and of international co-operation in questions of health. It is an honour as well as a pleasure to open this Congress and to wish for it the greatest possible success. It is hoped that it will stimulate the study of this question, that it will inspire research and investigation, and that it will add to the general culture and learning of the profession of medicine. Then there is another aspect or interpretation to the history of medicine—namely, the history of our knowledge of particular diseases and pestilences, a subject which has been worked at in this country in modern times by Dr. Charles Creighton, whose famous book on the *History of Epidemics in Britain* has for many years been a classic. We might well study the history of leprosy, of plague, of sweating sickness, of small-pox, and even of influenza, and from such a study we derive a knowledge of how these diseases have been dealt with in the past, which is full of interest and importance in regard to their control in the present. Much has been done in this regard, and we now know a good deal about the prevalence of leprosy and plague in past centuries. The foundations of old lazar houses and plague hospitals and plague pits are still to be found in all parts of these islands, and the records made by past observers of these scourges bring valuable information to the hands of the administrator. We recognize most gladly the splendid work which has been done abroad in this direction, but we are justly proud of our own history. For we have had in England not only famous historians of medicine such as Dr. Freind, the famous Richard Mead, Dr. Wilan, Dr. Greenhill, and Dr. Adams, but we have to-day happily still with us Sir Clifford Allbutt, the venerable Professor of Physic at Cambridge, and Sir Norman Moore, the historian of St. Bartholomew's Hospital, the President of Honour of our Congress. It is but yesterday that we had in our midst Sir William Osler, the brilliant Professor of Medicine at Oxford, whose work as historian of medicine and as the inspirer of the study of the history of medicine stands in the very front rank. With the medical profession in all countries we mourn the loss we have sustained in his death."

Lord Onslow then received and shook hands with each of the official delegates, who were present from the following countries: Belgium, Denmark, Egypt, France, Greece, Italy, the Netherlands, Portugal, Rumania, Spain, Switzerland, and the United States.

Presidential Address.

Dr. SINGER, President of the Congress, then took the chair, and welcomed the members to what he believed to be the first attempt at an international reunion of doctors in England since the great war. It was in the fitness of things that history should be the first branch of the science to bring men together again, and that Belgium, being on the borders of so many different linguistic regions, should be the first place of reunion. Those who assisted at such a Congress believed that the history of medicine was not only a subject worthy to distract them and amuse them, but a discipline full of humanity and philosophy, covering more than half of the field of studies known under the name of history of science. We were supposed to belong to the era of evolution, and science, amongst all the subjects which man interested himself in, was changing most rapidly. The thoughts of our century were separated from those of the past by the fertilizing doctrine of evolution. This doctrine was one way of presenting the truth, and at least it had contributed to stimulate the historian's studies in biologistic research. The history of medicine gave to the medical man in practising his profession or in carrying out his scientific researches the only footing to withstand the cynicism of this period of his life, when the ardour of youth had disappeared without being replaced by the mellowness of age. With this support the doctor could find joy in his work and pride in his profession. In England the foremost writers of the history of medicine had been men who gave the time they could spare from the exercise of their profession. The President of Honour, Sir Norman Moore, and Sir Clifford Allbutt were the two pioneers and veterans in England of the history of medicine. The Vice-President of Honour, Sir D'Arcy Power, and the Treasurer, Mr. Walter Spencer, by their skill, their knowledge, and their kindness had acquired the affection and respect of all doctors whose mother tongue was English; and with them he would associate the name of Dr. Raymond Crawfurd. In conclusion, Dr. Singer expressed gratitude to his indefatigable colleagues, Dr. J. D. Rolleston and Mr. C. J. S. Thompson.

National Delegates' Reply.

Dr. LAIGNEL-LAVASTINE, delegate from France, on behalf of the other national delegates, said, in reply: "To greet the British Government and doctors is for me an honour and pleasure; it is an honour to represent before one of the most powerful social organizations in the history of the world our society, born but yesterday, and the joy of saying aloud all the good things I think of my colleagues to myself. In the

name of all the delegates, present and absent, I address our heartfelt thanks to our present hosts, and express to them our pleasure in being here."

Sir D'ARCY POWER, in the name of the British section of the Society of the History of Medicine, offered a cordial welcome to all the members. England considered it a great honour that she should have been chosen for the third meeting, and he felt sure that this was a sign of the increasing interest in the history of medicine in this country. He hoped all the members would carry away with them recollections of a very pleasant meeting.

Dr. TRICOT-ROYER responded, saying he felt assured that the present Congress would be crowned with success. The increasing interest in the subject was noticeable in both the Antwerp and Paris meetings, but here there was the perfect discipline and organization to bring it to perfection. The next meeting of the society should be held at Brussels next year, when His Majesty the King of the Belgians would be pleased to take it under his patronage. Amongst the subjects for discussion would be Oriental, Greco-Roman, Byzantine, and Middle Age healing arts, and medical science during the war.

Reception at the College of Physicians.

In the afternoon a reception was held at the Royal College of Physicians of London. The President, Sir HUMPHRY ROLLESTON, in cordially welcoming the members of the Congress, conveyed to them the gracious message from Sir Norman Moore, "an entire lover of the College," whose great work in promoting the study of medical history in this country had been appropriately recognized in his position as President of Honour of the Congress. In 1518, when Thomas Linacre, perhaps the most learned man of his time, obtained a Royal Charter from Henry VIII, medicine was scarcely better than a mechanical art, and there was no society in this country, save the religious foundations and universities, solely devoted to the pursuit of knowledge. Anxious to raise the standard of the medical profession, Linacre founded the College on the lines of the Italian universities of Bologna and Padua, and the early Fellows of the College were first learned men and then physicians. From 1518 to 1614 the College occupied Linacre's house in Knight Rider Street, and John Caius, the founder of the science of anatomy in England, did much for the organization of the College. The next period (1614–66) at Amen Corner was noticeable for Harvey's Lumleian lectures, in which his discovery of the circulation was made public, and for the issue of the first pharmacopoeia of London in 1617. Sydenham and Thomas Browne were connected with the College; their fame reflected credit thereon. The fire of London destroyed the College, Harvey's museum, and most of the library in 1666, and for the next 150 years the College was lodged in Warwick Lane, in a building designed by Sir Christopher Wren, the dome of which was described by Garth as:

> "A golden globe placed high with awful skill,
> Seems to the distant sight a gilded pill."

Among the famous Fellows during this period were Sir Hans Sloane, President of the Royal Society, whose collections formed the nucleus of the British Museum; Richard Mead, the patron of arts and literature; Arbuthnot, who invented the character of John Bull; Garth, the author of *The Dispensary;* Matthew Baillie, who wrote the first book wholly devoted to morbid anatomy; Freind, the historian; Heberden, of the *Commentaries;* and Thomas Young, of the undulatory theory of light. In 1825 the College moved under the auspices of Sir Henry Halford to its present site, and since then the great names connected with the College included those of Bright, Addison, Thomas Watson, and William Jenner. The President then called on Dr. Chaplin to describe the library.

An interesting display of rare books, silver, plate, prints, and other objects was set out in the Library and Censors' Room, and the Harveian Librarian, Dr. ARNOLD CHAPLIN, in his brief but most interesting survey of the history of the Library, indicated some of its treasures. The members of the Congress were afterwards entertained to tea by Sir D'Arcy and Lady Power at their house in Chandos Street, Cavendish Square.

Prehistoric Human Skulls and the Evolution of Man.

At the largely attended conversazione given by the President and Mrs. Singer to the members of the Congress on the evening of July 17th, Professor G. Elliot Smith, F.R.S., gave an address on recent discoveries of fossil human remains and their significance in the evolution of man.

Professor ELLIOT SMITH said that the knowledge of extinct species of the human family was comparatively recent. Until 1848 no remains of any human being who did not belong to *Homo sapiens* had been discovered. In that year, while some work was proceeding on the defences of Gibraltar, an officer of the Royal Engineers unearthed the first human skull which did not belong to that order. The enormous importance of the discovery was not at first realized, and in the meantime, in the Neanderthal valley in Germany, another skull was found of similar characteristics, so that the name *Homo neanderthalensis* became attached to the Gibraltar specimen also. A few months ago there came to light in Rhodesia an extraordinary skull, so different from the other types that a new species, *Homo rhodesiensis*, had to be created to receive it. In most respects it was very much more primitive than the Neanderthal type, though the individual specimen suggested that it was more recent in date. But the most remarkable relic of ancient types of man was the Piltdown skull, recovered in Sussex about ten years ago, which threw a clearer light upon the early history of the human family than any other known fossil remains. A new genus of the human family, called *Eoanthropus*, or the "dawn man," was created on the basis of the Piltdown skull; it was more primitive than anything hitherto discovered, except the *Pithecanthropus* or "ape-man" of Java.

The Gibraltar specimen was much flatter than the skull of modern man, the eye sockets much larger, and the nose merged into the face without any distinct line of separation. The Rhodesian skull at first sight presented a striking resemblance to the Gibraltar specimen; the eyebrow ridges were enormous, much larger than in the most primitive type of living man—the Australian aboriginal—and the curve of the nostril resembled that of the gorilla. From the photographs which arrived in this country before the skull itself it appeared to be very like the *Pithecanthropus*, but an examination of the actual skull showed it to be much more modern than the Javan specimen. The Heidelberg jaw, discovered in 1907, which presented a close approximation to the ape, but had typical human teeth not much bigger than those of modern man, was 3 mm. too short and about the same distance too narrow to fit the Rhodesian skull, which therefore corresponded to a face of quite phenomenal proportions. There had been a good deal of discussion in the medical journals as to the meaning of two holes found in the Rhodesian skull, and it was suggested that the individual had suffered from mastoid disease. It was, however, impossible to attribute these holes to any such pathological condition. He had examined fifteen or twenty skulls of Egyptians of the pre-dynastic period—at least sixty centuries old—who suffered and died as a result of mastoid disease, and the lines of inflammation running along between the muscular planes marked out distinctly the way in which the disease had spread. In the Rhodesian skull there was no trace of any such inflammatory reaction. The holes were more consistent with the theory of the gnawing of beetles. The teeth of the Rhodesian man were affected by true caries, precisely of the modern type, whereas in pre-dynastic skulls from Egypt caries was practically unknown. The lecturer added some other details of the Rhodesian skull which he gave in a former lecture on a similar occasion (BRITISH MEDICAL JOURNAL, February 4th, 1922, p. 197).

The relative position of these different species and genera in the human family was next considered. The most primitive was represented by the Javan skull, above which stage the genus *Homo* separated, and three specimens of this genus were now known, including *Homo sapiens*, to which all the living members of the human family belonged. A great deal of controversy had taken place with regard to the Piltdown remains, and all foreign anthropologists appeared to assume that the Piltdown jaw was simian. Apart from the inherent unlikelihood that the jaw of a hitherto unknown type of chimpanzee should have been found within the same yard of earth as the skull, minus the jaw, of a hitherto unknown type of human being, an independent reconstruction of the skull, which had been made recently in his own department at University College by Professor Hunter of Sydney, proved that the skull harmonized perfectly well with the jaw. The skull presented a form absolutely unknown in any other member of the human family; although it had contained a brain of definitely human capacity yet it reproduced the form of an anthropoid ape, but the skull and jaw had now been harmonized, and there was no doubt whatever that the Piltdown fragments belonged, not to different creatures, but to one individual, the most primitive human with the exception of the *Pithecanthropus* of Java.

An *x*-ray photograph of the Piltdown jaw showed that the teeth were not typical of the chimpanzee, the pulp cavities were very large, and the walls comparatively thin, whereas in the chimpanzee the pulp cavities were smaller and the teeth much thicker.

The great interest of these fossil remains was that they enabled moulds of the interior of the skull to be made whereby the proportions of the different parts of the brain could be studied. Since the time of Charles Darwin, who himself made no such mistake, everyone who had discussed human evolution had overlooked the organ which was distinctive of the human family, for if there was one thing characteristic of the human being it was his intellectual powers. A study of the endocranial cast of the *Pithecanthropus* showed that the front part of the brain looked as though it had been crumpled or hindered in its growth. The same was true of the Rhodesian skull. All these skulls showed a deficiency of the high-domed forehead which characterized modern man. With the development of the human family there was a gradual expansion of the brain. The peculiarities of the human brain represented simply the culmination of a series of processes which began in the Eocene period. The apes and other creatures were not so much phases in the development of man's condition as specialized members of the order *Primates*, which had fallen out of the race and had adopted some specialization of habit and structure to save them from extinction. Man represented that particular group of animals which had not taken refuge in these specializations, but retained all the plasticity and the generalized structure which made it possible for him to take advantage of the opportunity to serve higher purposes when his brain had grown to a sufficient stage.

The lecturer sketched the rise of a particular group of arboreal animals, among whom the most primitive sense of smell first became less important and dominating, while that of sight came to be cultivated. The cultivation of vision led also to the cultivation of the powers of touch and of the motor region. Animals which began to trust to vision received an enormous stimulus to the growth of the cerebral cortex. With the vision becoming convergent the creature was able to guide its paws or hands in the performance of skilled movements; the auditory region also was enhanced in importance, and more significant still was the development of that part of the brain injury to which in the modern brain produced certain definite disturbances of speech. One of the distinctive powers which marked the transformation from the ape to the human being was that of communication by something more than merely emotional cries. The brain of the gorilla as compared with the human brain was singularly deficient in the pre-frontal region, the parietal region, and the temporal area. The expansion which converted the brain of the ape into the brain of the human centred chiefly in these three regions. It was also worthy of note that the part of the brain which developed latest in the human child was the part which was least well developed in the primitive members of the human family. He referred in this conexion to the recent work of Dr. Henry Head on the subject of aphasia and speech disturbances which threw an instructive light on these deficiencies. It suggested that in the Rhodesian brain the power of connected thought and speech had been acquired to some extent, much less so in the case of the Piltdown man and the *Pithecanthropus*.

The last type of development was the expansion of the pre-frontal region, which presumably indicated mental concentration, and the development of the upper part of the brain, which indicated an increased appreciation of the texture and form of objects, probably associated with the skilled movements of the hands. During the last fifty years it had been frequently discussed whether the assumption of the erect attitude and the freeing of the hands might not have been the responsible factor in bringing about the development of man. But the erect attitude had not been assumed in the most primitive members of the human family. Man became erect only after he became a human being. It was one of the results of the new powers associated with the growing brain. The lecturer concluded with a diagram showing the inclination of the medulla oblongata in the subcerebral plane, which was least acute in the gorilla, more so in the *Eoanthropus*, still more in *Homo rhodesiensis*, and at almost the same inclination in *Homo neanderthalensis*, and most acute in *Homo sapiens*. This showed in another way that the assumption of the erect attitude occurred within the human family itself, after members of definitely human rank had come into existence.

The lecture was illustrated by a series of transverse sections of endocranial casts to show the initial broadening of the primitive human brain and the lateness of the acquisition of the high-domed forehead; also a series of left halves of endocranial casts to demonstrate the process of expansion of the human brain in its phylogeny. This process was shown to include localized expansion of the posterior temporal area, growth of the inferior parietal area, beginning of superior parietal growth, progressive expansion of pre-frontal area, and sudden expansion of inferior temporal area.

On the motion of Dr. SINGER, Professor Elliot Smith was warmly thanked for a lecture which kept the attention of the large audience until within an hour of midnight.

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE thirteenth annual meeting of the Oxford Ophthalmological Congress was held at Oxford on July 6th, 7th, and 8th. As in past years, the proceedings took place in the Department of Human Anatomy of the University Museum, kindly lent for the purpose by Professor Arthur Thomson, Professor of Human Anatomy, whilst Keble College was again available as headquarters through the courtesy of its Warden, the Rev. B. J. Kidd, D.D.

The meeting opened at 10.15 a.m. on Thursday, July 6th, with the Deputy Master, Mr. P. H. ADAMS of Oxford, in the chair. In declaring the Congress open Mr. Adams voiced the feelings of all present in expressing deep regret at the absence of the Master, Mr. Sydney Stephenson.

A discussion on "The significance of retinal haemorrhages" was opened by Dr. C. O. HAWTHORNE (London) from the point of view of the physician, and by Mr. P. H. ADAMS from that of the ophthalmologist. The two papers were followed with much interest and the subject was discussed by the following: Mr. ERNEST CLARKE (London), Dr. T. HARRISON BUTLER (Leamington Spa), Dr. LUNDSGAARD (Copenhagen), Mr. R. FOSTER MOORE (London), Dr. A. G. GIBSON (Oxford), Mr. N. C. RIDLEY (Leicester), Mr. J. JAMESON EVANS (Birmingham), Mr. D. LEIGHTON DAVIES (Cardiff), Miss MARION GILCHRIST (Glasgow), Dr. STOBIE (Oxford), Mr. MATHESON MACKAY (Hull), Dr. THOMSON HENDERSON (Nottingham), Mr. JOHN HERN (Darlington), Mr. B. CRIDLAND (Wolverhampton), Mr. TRAQUAIR (Edinburgh), and Mr. J. GRAY CLEGG (Manchester).

At the conclusion of the discussion the Annual General Meeting was held, when a resolution of regret at the absence of the Master was unanimously passed. The HONORARY SECRETARY reported that the finances of the Congress were in a satisfactory state, and it had therefore been decided by the Council to make a second donation of ten guineas to the Illustration Fund of the Ophthalmological Society of the United Kingdom; that twenty-six new members had been elected during the year; and that as the extension of the meeting to Saturday had proved so successful last year it had been repeated at the present meeting.

After lunch Mr. C. G. RUSS WOOD (Shrewsbury) read a paper on the comparative value of artificial illuminants embodying some valuable original work by him on the subject, and Mr. T. STEWART BARRIE (Glasgow) in a paper entitled "The spontaneous cure of strabismus convergens" drew attention to the diminution and not infrequently the disappearance of squint in children as shown by statistics obtained in school clinics between the ages of 5 and 14. Discussion followed both papers. The afternoon session concluded with a contribution by Mr. J. GRAY CLEGG (Manchester) in which he gave his impressions of an International Congress of Ophthalmology held in Washington, D.C., U.S.A., in April last, together with interesting experiences of various clinical centres in the United States and Canada.

On Friday morning the Doyne Memorial Lecture was delivered by Dr. J. Burdon-Cooper of Bath, the subject being "The etiology of cataract." After a fitting tribute to the late Robert W. Doyne, founder of the Congress, Dr. BURDON-COOPER reviewed the work already published by various authors on the subject, and then described his own research in this field, upon which he has been engaged since 1906. The lecturer was congratulated upon a valuable contribution to the investigation of the causes of cataract in its various forms, and the opinion was expressed that the address should be read with profit and interest by all ophthalmologists. At its conclusion Dr. Burdon-Cooper received the Doyne Memorial Medal of the year. Mr. A. L. WHITEHEAD (Leeds) described some cases of eclipse amblyopia and their after-history; Mr. A. L. MACCALLAN, C.B.E. (Cairo), referred to the

occurrence of trachoma of the lacrymal sac, and a paper on the dry sterilization of instruments by Dr. C. F. BENTZEN (Copenhagen) concluded the morning session.

After lunch members assembled at the Oxford Eye Hospital, where Sir ANDERSON CRITCHETT opened a discussion on methods of operating for cataract. In an extremely interesting address he reviewed the operations of the past. Referring to the various procedures in vogue at the present time, he urged eclecticism in operating as being of the first importance; he had advised this as early as 1883 in a paper published in the BRITISH MEDICAL JOURNAL, and his subsequent experience up to the present time strongly confirmed this view.

Dr. LUNDSGAARD (Copenhagen) described a subconjunctival method of extracting cataract which he had found of good service in a number of cases. Lieut.-Colonel H. SMITH, C.I.E., I.M.S., late of Amritsar, spoke on the intracapsular operation as performed by Dr. Barraquer of Barcelona, and discussed the subject in general. Dr. T. HARRISON BUTLER (Leamington Spa), Mr. C. KILLICK (Bradford), and Mr. B. CRIDLAND (Wolverhampton) referred to the value of cutting a bridge of conjunctiva in making the section, and gave their experience of cases. The subject was further discussed by Mr. E. E. MADDOX (Bournemouth), Mr. JOHNSON-TAYLOR (Norwich), and Mr. A. H. H. SINCLAIR (Edinburgh).

On Saturday morning papers were read by Mr. J. GRAY CLEGG (Manchester) on bilateral symmetrical congenital korectopia and melanosis of the eye, skin, and palate; by Mr. A. S. PERCIVAL (Newcastle-on-Tyne) on (1) a note on light sense, (2) a neglected factor in the etiology of coal-miners' nystagmus; by Dr. T. HARRISON BUTLER on "Changes in refraction," a contribution which met with free discussion; and by Mr. A. GREENE (Norwich), who described (1) a useful point in squint operations and (2) a case of foreign body in the lens.

In the Scientific Museum Mr. J. H. TOMLINSON (London) exhibited a transillumination lamp with a rheostat to run from the main, and some interesting pathological specimens were shown by Mr. R. J. COULTER (Newport), Mr. N. PIKE (Cheltenham), and Mr. B. CRIDLAND. In the Commercial Museum a large collection of ophthalmic apparatus and instruments was on view. On Thursday afternoon at the close of the session a garden party was held at New College, where members and their friends were received by Professor Turner and the Hon. Mrs. E. F. Matheson. The annual dinner took place in the evening in the Hall of Keble College.

The meeting was highly successful and well attended, and amongst members from overseas were Dr. Lundsgaard (Copenhagen), Professor Fritz Ask (Lund, Sweden), Dr. C. F. Bentzen (Copenhagen), Dr. Saunte (Odense, Denmark).

England and Wales.

UNIVERSITY OF LIVERPOOL.

AT the recent graduation ceremony the degree M.Ch. was conferred on Mr. Thomas H. Bickerton, lecturer in ophthalmology. Mr. Bickerton two years ago retired from the post of ophthalmic surgeon to the Royal Infirmary, and was appointed honorary consulting surgeon. His services of many years' duration to the hospital were signally recognized by the conferment of the honour of President of the Royal Infirmary at its last annual meeting. Mr. C. Thurstan Holland, lecturer in radiology and medical officer in charge of the electrical and orthopaedic department, Royal Infirmary, also received the M.Ch. degree.

MEDICAL AND SURGICAL TEACHING AT LEEDS.

As indicated in recent articles by our Leeds correspondent, an important step has been taken by the University of Leeds with the object of assisting in the further development of the clinical teaching of medicine and surgery. Three new full-time officers have been appointed—one as medical tutor and registrar and two as clinical assistants in surgery. These officers will devote their whole time to teaching and research in the School of Medicine and in the General Infirmary at Leeds. The Council has made the following appointments to the new posts thus created: Dr. W. MacAdam has been appointed medical tutor and registrar; since July, 1919, he has held the appointments of lecturer in pathology at the University of Leeds and assistant pathologist to the Leeds General Infirmary. He has made a number of contributions to medical literature. Mr. H. W. Symonds has been appointed clinical assistant in surgery; he was made resident surgical officer at the General Infirmary in March, 1919, and part-time demonstrator in anatomy at the Leeds Medical School in January, 1921. He holds appointment at present as surgical specialist to the Ministry of Pensions, and has a commission as major in the Second Northern Casualty Clearing Station. Mr. P. J. Moir has been appointed clinical assistant in surgery; since 1920 has acted as house-surgeon, resident casualty officer, and resident surgical officer at the Leeds General Infirmary.

TUBERCULOSIS ADMINISTRATION.

Circular 304 (England), addressed by the Minister of Health to tuberculosis authorities, deals with the procedure for securing adequate diagnosis in doubtful cases of tuberculosis, the Ministry of Pensions system of Medical Record cards, the length of stay in residential institutions of ex-service cases of tuberculosis (under Memorandum 30/T), and leave of absence from residential institutions in such cases. Under the first head two cases are dealt with, that of the pensioner who is due for re-board in which the diagnosis is considered doubtful by the Ministry of Pensions Commissioner of Medical Services or by the Medical Board, and that of the ex-service man claiming under Article 9 of the Royal Warrant to be suffering from tuberculosis attributable to or aggravated by war service. In both cases the area D.C.M.S. will request the tuberculosis officer to furnish a report on form M.P.M.S.O.122, unless a report has already been furnished on form T.S.15A under Memorandum 30/T. A fee of 5s. is payable for each report on the new form. In the case of form T.S.15A the fee is only payable where attributability to or aggravation from service is finally established. Cases in which the Medical Board considers the evidence for or against the presence of tuberculosis inconclusive are to be referred to an expert officer of the Ministry for a decision. Five such experts have been appointed under the title Deputy Commissioner of Medical Services, Tuberculosis. These officers will be responsible for securing observation of doubtful cases in hospitals under the control of the Ministry of Pensions. In such cases the D.C.M.S.(T.B.) will notify the tuberculosis officer concerned and secure his co-operation in examination and diagnosis and decision as to attributability. Close liaison between the D.C.M.S.(T.B.) and the tuberculosis officers in his region is desired. In connexion with the length of stay of ex-service cases in residential institutions provision is made for the exercise by the D.C.M.S.(T.B.) of the right of the Minister of Pensions to call upon tuberculosis officers for special reports upon patients continuously resident in such institutions for six months or longer. No fee is payable for these reports.

The names and addresses of the D.C.M.S.(T.B.) and the areas for which they act are as follows:

Dr. D. G. M. MUNRO, 55, Lionel Street, Birmingham. Derbyshire, Herefordshire, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Rutlandshire, Shropshire, Staffordshire, Warwickshire, Worcestershire.

Dr. G. B. PRICE, Burton Court, Chelsea, S.W.3. London, Bedfordshire, Berkshire, Buckinghamshire, Cambridgeshire, Essex, Hertfordshire, Huntingdonshire, Isle of Wight, Kent, Middlesex, Norfolk, Oxfordshire, Southampton, Suffolk, Surrey, Sussex.

Dr. W. L. LYALL, 122, George Street, Edinburgh. Cumberland, Durham, Northumberland.

Dr. F. WEBB, 76, Newton Street, Manchester. Cheshire, Lancashire, Westmorland, Yorkshire.

Dr. HALLIDAY SUTHERLAND, Clifton Down Buildings, Bristol. Cornwall, Devonshire, Dorsetshire, Gloucestershire, Somersetshire, Wiltshire.

OPENING OF DURHAM COUNTY CONVALESCENT HOME.

On July 1st Durham county celebrated the opening of the E. F. Peile Convalescent Home for nursing mothers and children under the age of 5 within its area. As the name implies, the house was a gift to the Maternity and Child Welfare Committee by the late Mrs. and Miss Fanny and Miss Helen Peile of Greenwood, Shotley Bridge. It was a great disappointment to all their friends that two of the donors were not spared to see the home opened, but their generosity and interest in the mothers and babies have now a permanent testimony. Dr. Ethel Williams, for Miss Helen Peile, declared the home open, and gave a most interesting address. Councillor Hedley Mason, chairman of the Maternity and Child Welfare Committee, presided, and warmly thanked all who had helped to forward the opening of the home.

Other speakers were Dr. T. Eustace Hill, county medical officer, and Dr. Mabel Brodie.

The home is situated in the middle of Shotley Bridge village. Only mothers actually nursing babies (not over six months old) are admitted. This is to help those finding difficulty in breast feeding or those recovering from illness following confinement. Children suffering from rickets and similar debilitating diseases, who are not hospital cases, will be admitted, provided they can be certified free from infection and non-verminous, for a period of not less than a fortnight. The maintenance fee has been fixed at 25s. for nursing mothers and 15s. a week for children without their mothers. The staff consists of matron, staff sister, two nursery trained nurses, and as the home is intended to be a training centre for nursery nurses three pupils will be taken. If later on it is thought practicable this number will be increased, and the domestic staff of three correspondingly reduced. The aim is to give at least six months' training to suitable girls over the age of 17, who wish to become children's nurses. They will be taught the general care of children, nursery routine, including all cooking and sewing necessary, the care of the nursing and the expectant mother, the management of breast feeding, etc., and the general principles of kindergarten and elementary child welfare work. It is intended that mothers in residence will also get a training in mothercraft. The senior welfare medical officer has been appointed visiting medical officer, while the medical officer of the Richard Murray Hospital is the medical officer to the home.

There is ample playing space in the grounds for children and shady corners in which the mothers can rest; the kitchen garden is a great asset. On the ground floor are the day nursery and mothers' rest room. Three night nurseries, to which the children will be apportioned according to age, together with the mothers' and the staff bedrooms, are on the first floor. A ward kitchen has been provided by utilizing part of the first floor landing, and isolation accommodation has been arranged in a cottage adjacent to and communicating with the rear of the main building. The whole building has been furnished as inexpensively as was consistent with the needs and comfort of the patients. Patients are being admitted mainly through the welfare centres, where the medical officers, aided by the health visitors, who have an intimate knowledge of their home conditions, can judge of the suitability of the applications.

Ireland.

IRISH MEDICAL SERVICES.

AT a recent meeting of the National Association of Insurance Committees a deputation was appointed to wait upon the Ministry of Health with regard to the unsatisfactory position of the Irish medical services. It was suggested that the housing scheme should not be segregated from any scheme for the treatment and prevention of tuberculosis, especially in rural areas. It was stated that a resolution was recently passed by the Cork Committee urging the Minister of Health that tuberculosis should be notifiable, as an infectious and contagious disease, by all members of the medical profession. It must, however, be borne in mind there has not been so far a Minister of Health appointed in either of the Irish Parliaments. In the northern Parliament a great deal of medical administration is done by the Minister for Labour, and in southern Ireland medical administration is, as heretofore, administered through the Local Government Department. Recommendations were made that in any tuberculosis scheme provision should be made for the detection of the disease in school-going children, and that affected children should be sent to an institution where they could be treated and educated at the same time. Another recommendation made was that schools should be provided with a room where children, who might get wet when going to school, could make a change of garment in order not to stand in wet clothes all day.

A memorandum was submitted by the County Dublin Committee for the consideration of the Association. The document contained the following recommendations, which it will be seen are much on the lines of the Report of the Irish Public Health Council:

(1) A medical service paid by the State.
(2) Central administration to be temporarily administered by the Local Government Board.
(3) A health council composed of representatives of local authorities and other bodies.
(4) The county or borough to be the minimum health unit, and a whole-time medical officer of health and veterinary surgeon to be appointed for each unit.
(5) Mandatory legislation on local authorities.
(6) District nurses for county health schemes.

SALARIES FOR POOR LAW MEDICAL OFFICERS.

The County Kildare Health Committee has decided to standardize the salaries for all Poor Law medical officers. In the county dispensary medical officers are to receive a minimal salary of £300 per annum, increasing by annual increments of £10 until a maximal salary of £400 is reached. The scale is made retrospective for existing medical officers. This scale is considered reasonable by the doctors concerned, and they have expressed their appreciation of the desire of the County Kildare Health Committee to treat their medical officials on an equitable basis. The scheme has not yet been sanctioned by the Local Government Department, and the Irish Medical Secretary (Dr. Hennessy) has been asked to wait upon that body in connexion with the question.

Correspondence.

FOETAL WELFARE.

SIR,—The subject of foetal welfare and foetal mortality is to be discussed in the Section of Obstetrics at the Annual Meeting of the British Medical Association in Glasgow, and it would make for considerable progress in this branch of preventive medicine if some definite and practical action were taken as the result of this discussion.

The few years in which the study of ante-natal physiology and pathology has been carried out have established very conclusively the two following points.

I. That there is a vast amount of ante-natal mortality which cannot be estimated by any other method than that of mere guesswork. Until obstetricians urge the necessity for the registration or notification of abortions no reliable information can be obtained as to the enormous wastage of child life. The thorns in the path of the medical practitioner, should such a notification take place, will not be in the violation of a patient's confidence, but in the diagnosis of early specimens of discharged ova. The registration of illegitimate births has not given rise to difficulties, and now that V.D. conditions are liable to notification surely no objection can be put in the way of any honest endeavour to combat the foetal mortality that is known to be so great. Notification of abortions might to a small extent curtail criminal methods of child murder which are so widespread in this country.

II. The further we carry out research upon ante-natal and intra-natal deaths the more are we convinced that a great number of such deaths are easily preventable if we had the means for their prevention at our disposal: such means being the adequate training of students and midwives, and also of post-graduates. All maternity hospitals should have an indoor and outdoor ante natal or foetal welfare departments, and facilities should be given for the necessary biochemical and bacteriological investigations of ante natal conditions. For it is mainly in the field of biochemistry that the harvest will be gathered. The life of the child should be cared for from the earliest conception of the ovum, and this attitude towards obstetrical problems will give results far beyond our present imagination, not only in ante-natal treatment but perhaps most of all in the prevention of intra-natal complications and operations. At the present moment the investigation of ante-natal problems is haphazard and uncontrolled by any central authority other than administrative. Workers are blindly seeking information upon reliable methods. Much time is wasted in following up ideas which prove themselves useless and profitless in the end. Sometimes a whole year's work has to be scrapped because a particular biochemical test has been condemned. The whole general teaching of obstetrics is at present chaos, and the public must be educated as to the great necessity for giving financial assistance to this branch of preventive medicine. The Medical Research Council is the first corporate body to give help in foetal welfare research, but what is required is co-ordination among workers.

I would suggest that the Ministry of Health and Medical Research Council be asked to co-operate with a central committee which has as its object the investigation of foetal

welfare, that it should be composed of representatives from the obstetrical societies of Great Britain, infant specialists, medical officers of health, and research workers both in physiology and pathology, and that a scheme should be drawn up for a definite line of research which could be undertaken, and that help and advice should be given as to the method and means of research.

This scheme would be an amplification of the present work of the Medical Research Council, and would bring in those who are engaged in the training of students and midwives and more especially those responsible for the health of the poor, such as medical officers of health.

I venture to make this suggestion as one suitable for discussion at the Annual Meeting in the hope that it may help towards the solution of our present difficult problems with regard to foetal welfare.—I am, etc.,

A. LOUISE MCILROY.

Obstetrical and Gynaecological Unit,
Royal Free Hospital, London,
July 17th.

THE SKULL OF SIR THOMAS BROWNE.

SIR,—It may be known to some of your readers that the skull of Sir Thomas Browne has recently been reinterred at Norwich, but that previously it came up to London, where careful measurements, drawings, and tracings of it were made. It is proposed to publish a full account of the skull in *Biometrika*, but it would much add to the interest of the proposed monograph if it were accompanied by a series of reproductions of the portraits and engravings of one of the most noteworthy of Englishmen who have combined the study of medicine with the pursuit of literature. The large number of plates required to illustrate adequately the relation of the skull to the portraits renders—under the present conditions of both printing and illustrative work—the appearance of a complete monograph, such as we desire to see issued, very difficult. We propose, therefore, to issue one hundred copies of the monograph at the price of 1 guinea each, if lovers of Sir Thomas Browne can be found in adequate numbers to subscribe for copies. Will you kindly permit us to appeal through your columns for the names of those who are willing to aid in this scheme for putting on permanent record the physical aspect of the author of the *Religio Medici*, who, by that and his other works, has won a unique position in the heart as well as in the mind of every cultured Englishman? Willingness to subscribe may be notified to either of the undersigned.—We are, etc.,

ARTHUR KEITH,
KARL PEARSON.

London, July 12th.

AORTIC MURMURS.

SIR,—I entirely agree with Dr. Thomas Lindsay that the aortic murmur he has written about recently ought to be more generally recognized to avoid a diagnosis of heart disease being made in healthy subjects by those who are unacquainted with this condition.

He doubts whether the murmur I described in the *Lancet* in 1909 is of the same character as that about which he wrote in the *British Medical Journal* of May 13th last. Having reread both of our descriptions and given them to others to read neither I nor they can see the difference. We both find that the murmur is bought into evidence by raising the arms, as in holding aside the clothes for examination of the chest, and that it disappears when the arms are hanging by the sides. It was for this reason I called it a "postural murmur."—I am, etc.,

E. L. MOSS,
Major, R.A.M.C.

Louise Margaret Hospital, Aldershot, July 6th.

INFECTIVITY OF ARTIFICIAL DENTURES.

SIR,—Dr. D'Oyly Grange is to be congratulated on calling attention to this most important subject (BRITISH MEDICAL JOURNAL, July 8th, p. 43). The efficient cleansing of artificial dentures is all too much neglected even by the better educated section of the public.

That this is so is very largely due to the very general omission of the dentist to give detailed instruction and timely criticism. A denture should be removed and brushed preferably after each meal, always after breakfast and at night; the gum covered by the plate, and so deprived of the natural friction of the tongue, and especially the gum margins round remaining teeth, should also be vigorously brushed. Before retiring the denture should be scrubbed with a stiff brush, dipped in water (preferably with a lump of soda added), rubbed on a piece of soap, and then charged with powder or paste. Special care should be given to the inside of clasps fitting round natural teeth, for which a pointed piece of cane should be used instead of a brush.

During the night the denture should be left in water to which some antiseptic has been added. For this purpose a chlorine preparation is suitable, for, though the taste is unpleasant, its effect, especially on gold, is almost magical, and greatly diminishes the trouble of brushing.

From Dr. D'Oyly Grange's statement that it is sometimes necessary to wear dentures at night I must differ emphatically, and have yet to see the case where it is so. Patients who study their appearance in bed may insist on wearing them, but that is another matter.

The contour of the face naturally suffers while the denture is out, but that is all; and the adhesion of the denture may not be so good immediately on insertion in the morning, but after wearing for a few minutes this is recovered. I regard it as a most pernicious practice.—I am, etc.,

J. H. BADCOCK, L.D.S. and M.R.C.S., L.R.C.P.

London, W., July 11th.

THE INTERSTITIAL GLAND AND SEX PROBLEMS.

SIR,—From the tone of Dr. Rawlings's letter in the JOURNAL of July 1st and from other communications I have received personally it would appear that my letter published on June 17th (p. 973) has caused some misunderstanding. The passage in my letter to which exception has been taken was intended merely as a supposition. It is as follows:

"If we are to accept Rumley Dawson's sex theory at all—and, so far as I have been able to ascertain, no later investigations have actually disproved it—then, instead of administering male interstitial gland, as Dr. Williams suggests, in cases of deficient 'maleness,' one would require to administer corpus luteum extracted from the right or male ovary, and from the left or female ovary in cases of deficiency in 'femaleness.'"

In the study of sex causation it is impossible to be dogmatic. But if one declines to accept the proffered proof of a theory on the grounds that it is insufficient or unorthodox, it does not necessarily follow that the theory has been "exploded." It requires as many hard facts to explode a theory as it does to prove it. Criticism is ever unduly severe on the unorthodox, and it is this feature that makes Rumley Dawson's work unacceptable to many. The idea of a pair of ovaries possessing heterosexual qualities is against one's conception of Nature, who, as Dr. Williams very neatly expresses it, "does not seem to have evolved dual organs with this kind of end in view."

Certainly Dr. Rawlings's case of a male birth following upon removal of the right ovary in no way disproves the theory of Rumley Dawson, for it is well known that it is impossible to be certain by mere inspection at the time of operation that the whole of the ovarian tissue has been removed. It is also an established fact that the minutest portion of ovarian tissue is sufficient to yield fertilizable ova. Hence the explanation of Dr. Rawlings's case.—I am, etc.,

R. DOUGLAS HOWAT, L.R.C.P. Edin.,
L.R.C.S. Edin., L.R.F.P.S. Glasg.

Denholm, Hawick, July 3rd.

CAESAREAN SECTION.

SIR,—In your issue of July 8th Dr. J. H. Martin has claimed priority with regard to certain details of the operation of Caesarean section.

For the past ten years I have been in the habit of turning the uterus inside out to remove placenta and membranes, and also of putting the patient in Fowler's position during convalescence. These practices are not original on my part, because I copied them from other members of the staff who preceded me.

It seems to me that Fowler's position may be applied to any abdominal operation, and that the only person who should receive the credit of it is Fowler himself.—I am, etc.,

ARCHD. N. MCLELLAN, M.B.

Glasgow, July 15th.

SIR,—Mr. S. J. Cameron is apparently indignant about my claim to having introduced (not "discovered") three excellent improvements in this operation at the Royal Maternity Hospital, Glasgow. It is a pity he did not show this indignation at the meeting of the Royal Medico-Chirurgical Society; if he had, then this correspondence would never have taken place.

1. *Incision.*—Mr. Cameron refers me to his *Manual of Gynaecology*, "published in 1915," when I was in khaki, but gynaecological and general surgical incisions are outwith the

argument; even the Romans went through the right rectus muscle, I have read. I purposely avoided referring to the case where Mr. Cameron severed the veins of the left broad ligament, but in answer to his twitting my comment on this case is that the first time my uterine incision is so far out of place—light good or light bad—as to sever the veins in any broad ligament then I shall cease to perform Caesarean sections.

2. *Turning the Uterus Inside Out.*—Mr. Cameron states that his father, Professor Murdoch Cameron, employed this manœuvre over thirty years ago. I was house-surgeon to Professor Cameron at the Maternity Hospital for six months in 1909 and assisted him at all his Caesarean sections during that period. On no occasion was the uterus turned inside out, nor was this ever spoken of. As I write I have before me Professor Cameron's article, "Abdominal section as a substitute for the performance of craniotomy" (BRITISH MEDICAL JOURNAL, 1891—that is, thirty-one years ago), in which there is no mention of turning the uterus inside out. To avoid much bleeding after the child was extracted he advocates, "place the cut surfaces in apposition and press them tightly together." This was repeated after the placenta had been "extracted." In his third Caesarean he describes the same procedure and apparently it was followed in many others. I have also before me another article by Professor Cameron, published in 1901, where improvements in technique are gone into in detail, but still no mention of this manœuvre. Totally opposed to turning the uterus inside out is the following sentence: "On no account should the uterine cavity be washed out or medicated in any way; the less the parts are interfered with the better." I leave the matter there.

3. *Sitting Posture.*—Here I can only refer Mr. Cameron to the *Proceedings of the Royal Society of Medicine*—discussion on Caesarean section, 1920—and also to the *Transactions of the Glasgow Obstetrical Society* last year, where I get full credit from one of our seniors—namely, Professor Munro Kerr. Mr. Lennie's contribution is a thin echo of his chief's.—I am, etc.,

Glasgow, July 15th. JAMES H. MARTIN, M.D.

SIR,—I notice in the BRITISH MEDICAL JOURNAL of July 8th, amongst the correspondence, that Dr. Martin of Glasgow takes exception to the technique as described by Mr. S. J. Cameron in reporting his cases of Caesarean section in your issue of June 10th. I cannot allow this to go unchallenged, as Mr. Cameron carried out the methods described in his paper—namely, (1) the abdominal incision through the right rectus, (2) turning the uterus inside out to remove the placenta and membranes, and (3) nursing the patients in the Fowler position—ever since his appointment as operative surgeon at the County Maternity Hospital, Bellshill, a considerable time before the date of Mr. Martin's paper of January, 1921.—I am, etc.,

H. J. THOMSON,
Medical Superintendent,
July 11th. County Maternity Hospital, Bellshill.

SIR,—It is with considerable astonishment that I read a letter in your issue of July 8th from Dr. Jas. H. Martin, which implies that it was only after Dr. Martin's paper on Caesarean section was read to the Glasgow Royal Medico-Chirurgical Society in April, 1921, that Dr. Cameron followed the technique mentioned.

I had the honour to be Dr. Cameron's house-surgeon at the Glasgow Royal Maternity and Women's Hospital from November, 1920, to April, 1921, and the technique which he then employed and had followed for several months in all straightforward cases of Caesarean section was the same as that described in Dr. Cameron's paper which appeared in the BRITISH MEDICAL JOURNAL of June 10th—namely, the incision through the right rectus sheath, the turning inside out of the uterus for the removal of the placenta, etc., and the putting of the patient in Fowler's position after the operation.

While attending Professor Murdoch Cameron's clinic as a student I had also seen the uterus inverted as mentioned above.—I am, etc.,

Glasgow, July 11th. ALISON M. HUNTER, M.B., Ch.B.

SIR,—Dr. J. H. Martin in his letter published in the BRITISH MEDICAL JOURNAL of July 8th, 1922, claims to have introduced certain modifications in the technique of Caesarean section. Further, he couples with his assertion of priority the insinuation that Dr. S. Cameron, after hearing Dr. Martin's paper, has adopted the improvements detailed, and has recently published an account of this technique without recognition of its originator. Such a suggestion is entirely misleading.

As house-surgeon in the Western Infirmary in 1918, in the Maternity Hospital in 1919, and subsequently as assistant-surgeon in the latter institution, I have had ample opportunity of learning Dr. Cameron's operative methods. Ever since I have been associated with him it has been Dr. Cameron's constant practice to open the abdomen through the right rectus sheath, and a considerable period before Dr. Martin delivered his paper (April 1st, 1921) Dr. Cameron was in the habit of warning house-surgeon and students of the special danger of making the incision on the left side in cases of Caesarean section. To facilitate the removal of placenta and membranes the expedient of turning the uterus inside out was regularly employed by him, and in this he was not unique. As house-surgeon I never heard anyone remark on this procedure as of recent introduction; it was accepted, indeed, without comment as a well-recognized manipulation. Dr. Cameron's patients were nursed in Fowler's position as a routine, but this attitude was not strictly enforced. On the contrary, the women were allowed to assume any posture they might prefer as more comfortable.

In justice to Dr. Cameron I consider myself bound to communicate these facts.—I am, etc.,

J. HEWITT.

Research Department, Glasgow Maternity Hospital, July 13th.

Universities and Colleges.

UNIVERSITY OF LONDON.

MR. DANIEL T. HARRIS has been recognized as a teacher of physiology at University College, and Mr. J. H. Woodger, B.Sc., is appointed to the University Readership in Biology tenable at Middlesex Hospital Medical School.

Professor E. H. Starling, M.D., F.R.S., has been added to the Board of Examiners in Psychology for the B.A. and B.Sc. examinations in 1922.

Certain changes have been made in the constitution and powers of the Boards of the Faculties of Arts, Medicine, and Science. The changes in detail include: (1) That, whereas the existing boards can only report through their respective faculties, thereby often causing considerable delay, in future the boards will report direct to the referring body; and (2) that the secretary of each board will not, as heretofore, be a member of the board, but a member of the administrative staff appointed by the Principal Officer. The changes do not affect in any way the statutory powers of the boards of studies or of the faculties.

The following examiners for the examination for the diploma in Psychological Medicine were reappointed for the session 1922-23: For Part A (i) and Part B (i), Sir Frederick Mott and Dr. E. Farquhar Buzzard; for Part A (ii) and Part B (ii), Dr. W. H. B. Stoddart and Dr. R. H. Cole.

Mr. H. L. Eason, C.B., C.M.G., M.D., M.S., and Sir Sydney Russell-Wells have been appointed chairmen of the Academic Council and Commerce Degree Committee respectively.

The following have been appointed associate examiners for the M.B., B.S. Examination for the session 1922-23:—*Medicine:* Dr. C. Bolton, Dr. W. P. S. Branson, Sir Charlton Briscoe, and Dr. C. Wall. *Surgery:* Mr. C. C. Choyce, Mr. H. S. Clogg, Mr. W. S. Handley, and Mr. T. P. Legg. *Midwifery:* Mr. J. S. Fairbairn and Dr. Eardley Holland. *Pathology:* Mr. T. W. P. Lawrence and Mr. B. H. Spilsbury.

Clause 1 of the regulations for the Gilchrist scholarship for women has been amended as follows:

Candidates must have passed an intermediate examination or the first examination for medical degrees of the University; a candidate who has completed her twentieth year on or before June 14th in the year of the scholarships examination for which she enters will be disqualified if she has passed an intermediate examination or the first examination for medical degrees earlier than June of the previous year.

The regulations for the Gilchrist studentship for women have been amended by the addition of the following:

The selected candidate will be required to devote her whole time to her studies during her tenure of studentship.

In its annual report the Committee of Management of the Brown Animal Sanatory Institution states that 5,700 animals were brought to the institution during the year 1921. Recent advances on the biology of bacteria was the subject selected for the five lectures delivered by the Superintendent at the Royal College of Surgeons in December, 1921, as required under the will of the late Mr. Brown. The superintendent, Mr. F. W. Twort, continued his work on influenza and on filter-passing lysins which are associated with and which dissolve up bacteria. He has also carried out some work on the ultra-microscopic viruses on dysentery and on leprosy. Mr. Twort's appointment as superintendent of the institution has been continued for one year from June 1st, 1922.

Applications for the William Julius Mickle Fellowship, value of at least £200, must reach the Principal Officer of the University not later than the first post on October 2nd. It is awarded

annually by the Senate to the man or woman who, being resident in London and a graduate of the University, has in its opinion done most to advance medical art or science within the preceding five years, and has therein shown conspicuous merit.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*Part II (Completing Examination)*: J. R. Duerden. *Part I (Including Forensic Medicine and Toxicology)*: Georgina R. Dunn, Idris Williams. *Part I only*: Muriel V. Joscelyne, Dorothy Staley, F. K. Wilson.

D.P.H.—J. B. Adams, E. D. D. Davies. *Part II (Completing Examination)*: B. A. Astley-Weston. *Part I only*: F. P. Mackie.

UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

D.P.H.—Martha F. Barritt, F. da Cunha, Winifred I. Doherty, Florence M. L. Graham, T. H. Jones, W. H. Leigh, J. K. Lund, G. H. Roberts, Doris A. Taylor, Mary I. Turner, Frances G. Wilcocks.

The following awards have been made:

Tom Jones Memorial Surgical Scholarship, Eric A. Linell. Dauntesey Medical Scholarship, (1) Maurice Sheehan, (2) Kathleen Sheehan. University Prize in Medicine, divided between R. L. Holt, F. H. Smirk. Dumville Surgical Prize, Hilda Pratt. Sidney Renshaw Prize, F. H. Smirk.

UNIVERSITY OF EDINBURGH.

THE following candidates have passed the final examination for the Diploma in Public Health: G. G. Allan, Dora W. Gerrard, Mary H. M. Gordon, Margaret Gray, Helen R. T. Hood, J. S. Macbeth, Agnes B. MacGregor, Florence E. M'Kenzie, Janetta J. Powrie, Margaret M. Proudfoot, G. Stewart, J. D. Stewart.

UNIVERSITY OF ABERDEEN.

AT the graduation ceremony on July 13th the following degrees and diplomas were conferred:

M.D.—*John Smith, Charles Clyne.

CH.M.—A. V. R. Don.

M.B., CH.B.—‡‖W. L. Hector, †§R. N. Ironside, ‖†R. S. Cruickshank, ‖†A. N. Gordon, ‖Gladys N. Watson, Isabella A. Baxter, A. F. Bothwell, Margaret P. Bowman, Agnes G. Bruce, A. J. Buchan, Janet S. Cameron, D. Campbell, R. J. Campbell, ‡*J. G. J. Coghill, Margaret J. Coutts, A. Cruickshank, J. F. Davidson, H. L. Duncan, R. J. Duthie, A. A. Eagger, Ethel R. Emslie, Lyla C. Forbes, Winifred M. Foster, W. Gregor, H. J. Horne, R. A. Hutchinson, Annie M. Jack, J. B. Jessiman, J. C. Kerrin, F. H. Lakin, W. Lawie, N. H. Leslie, G. L. McCulloch, G. A. Macdonald, Isabella F. Mackenzie, W. Mc.C. Macpherson, Edith M. Macrae, R. McRobert, R. B. Milne, A. A. McI. Nicol, C. L. Noble, W. J. O'Connor, Alice Reid, C. E. Riddell, C. J. Royston, J. B. Samson, J. F. Shepherd, A. Stephen, R. Thomson, Alice M. Watt, Eleanor M. Watt, Gladys M. West.

D.P.H.—A. A. Duffus, Marjorie M. Milne.

* Honours for Thesis.
† First Class Honours.
‖ Second Class Honours.
‡ Completed Final Medical Professional Examination with distinction.
§ Completed Final Medical Professional Examination with much distinction.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I.—*Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Pathology and Bacteriology*: *J. E. Elias n, *R. A. D. Pope, M. Cohen, J. J. O'Grady, J. K. S. Thompson, J. M. Mounsey, R. A. Dench, G. Robinson, O. G. Wilde, C. W. J. Ingham, J. A. du Toit, L. D. Dennard, L. E. J. Werner, C. J. McQuillan, R. Warnock, Sylvia B. Wigoder, J. M. Gordon, H. Rutten, J. Kalmanson, W. R. Aykroyd, Kathleen D. Murison, F. T. Easby, M. D. Fox, N. M. Greeves, J. J. Laing, T. Freedman, N. G. McAuliffe, Alice E. Dockrell, R. W. J. van Janse, C. R. Hillis, Dorothy I. Henry, Victoria J. Wilson, R. E. Steen. *Pathology and Bacteriology only*: A. W. Eksteen, L. Harris, N. J. V. van Druten, W. L. W. Smith, S. W. Jamison, M. Jaffe. *Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene*: S. McDermott, Gladys Weatherill, A. V. B. Crawford, J. L. Stuart. *Materia Medica and Therapeutics only*: E. C. Downer. *Medical Jurisprudence and Hygiene only*: Eileen Brangan.

PART II.—*Medicine*: I. Cornick, M. G. J. Powell, J. V. Carroll, M. Sayers, Beryl F. E. Cockle, M. P. Louw, D. J. Malan, G. S. Moran, J. H. Rauch, A. W. Eksteen, J. C. J. McEntee, M. Gallivan, J. G. Russell, Charlotte A. Stuart, G. Bewley, H. Hall, S. W. Russell, J. D. Wicht, R. Seale, A. H. N. Todd, L. Phillips, S. G. Weldon, J. M. O'Connor, Mary H. Harcourt, J. H. J. Stuart. *Midwifery*: *J. C. Earl, B. Gluck, E. M. Landau, J. O'N. McKenna, L. J. Coetzee, R. Lipschitz, R. H. Micks, Dorothy C. H. Dorman, P. Samolsky, Maria E. Wagener, S. D. Gabbe, D. H. F. Milmo, J. Lait, J. E. McCormick, C. W. R. McCaldin, D. L. H. Moore, J. D. Wicht, W. R. Burns, R. R. D. Crawford, R. Hegy, J. G. Russell, J. H. Rauch, A. W. Eksteen, J. H. Hodgman, P. F. H. Wagner, C. G. S. Van Heyningen, A. Asherson, B. Vivier, J. F. Van Staden, Alice M. A. Downing. *Surgery*: M. Bewley, N. McI. Falkiner, S. G. Rainsford, J. C. Gillespie, M. M. Viljoen, J. C. J. McEntee, S. W. Russell, Minnie Alper, J. Lait, G. Bewley, R. Hegy, G. Blackall, B. Vivier, M. P. Louw, W. B. E. McCrea, R. N. Perrott, J. V. Carroll, A. E. Drotske, May E. Powell, Florine I. Irwin, J. R. Craig, J. Harte, J. E. McCormick, M. Sayers.

D.P.H., PART I.—*Chemistry, Bacteriology, Physics, and Meteorology*: Catherine A. Gosgin, Mary M. Galvin.

PART II.—*Sanitary Engineering, Practical Sanitary Report, Hygiene and Epidemiology, Vital Statistics and Public Health Law*: Margaretta T. Stevenson, Alice B. S. Smith, J. S. Dockrill, R. V. Dowse.

* Passed on high marks.

QUEEN'S UNIVERSITY OF BELFAST.

AT the graduation ceremony held on July 11th the following degrees were conferred:

LL.D. (*Hon. Causâ*).—Professor J. Lorrain Smith.

M.D.—W. Bryars, F. Campbell, W. Harvey (with gold medal), B. Lyons, F. MacSorley, J. P. Martin, S. Millar (with commendation).

M.CH.—H. B. Steen (with commendation).

M.B., B.CH., B.A.O.—*Rachel E. Bamford, *C. A. Calvert, *W. Carson, *Olive M. Darling, *W. G. Frackleton, *Ellen McC. Jackson, *J. F. Knox, *W. Lennon, *R. H. Longmoor, *J. J. McSorley, *R. A. Reid, *R. V. Robinson, *R. Thompson, A. Brown, W. F. Bryson, J. Campbell, J. Carrey, Winifred M. Chambers, W. B. S. Crawford, W. E. Crosbie, W. M. Farr, F. J. Ferguson, E. R. Frizelle, E. V. Greeves, T. V. Griffith, F. Halliday, J. W. Heney, J. Houston, R. Huey, Mary M. Hughes, R. Johnston, Mary J. S. Killen, Ida M. Kirker, A. W. J. Knox, T. Law, M. F. Leslie, J. C. Liston, Emily M. McCandless, H. J. McCavana, W. McCoach, N. McKibben, Evelyn M. McKinney, Maude W. McKnight, C. McShane, H. T. McWilliams, J. E. McWilliam, Margaretta McM. Macmillan, J. A. Moody, J. W. Nesbitt, Mary E. Patterson, J. Scott, A. C. Seymour, P. J. Shankey, Elizabeth G. Shillington, G. T. F. Slowey, S. E. Smyth, R. Watson, A. R. Wheeler, J. B. White, Mary A. White, A. A. Woods.

* Second class honours.

D.P.H.—Mary I. Adams, Frances E. Bell, S. McI. Bolton, C. L. Broomhead, J. S. Dudgeon, R. A. Elliott, Winifred E. Hadden, D. Jamison, J. McKay, S. E. Picken, Margaret W. Snodgrass, J. A. Smyth, H. Stewart, W. Tyrrell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY Council was held on July 13th. The President announced the result of the election to the Council (see BRITISH MEDICAL JOURNAL, July 15th, p. 112).

Licences and Diplomas.

Licences in Dental Surgery were granted to sixty-four candidates found qualified at the recent examinations.

Diplomas in Public Health were granted jointly with the College of Physicians to twenty-five candidates recently found qualified.

The Diploma in Psychological Medicine was granted to one candidate jointly with the Royal College of Physicians.

A certificate of the Diploma of "F.R.C.S. (with Ophthalmology)" was granted to one candidate.

International Congress of Otology.

Sir StClair Thomson and Mr. Arthur Cheatle were appointed delegates to represent the Council at the tenth International Congress of Otology which is being held in Paris this week.

Alterations in the Rules Relating to College Triennial Prize and John Hunter Medal.

1. The John Hunter Medal executed in bronze shall be awarded with the Triennial Prize of £50.

2. The recommendation for the award shall be entrusted to a committee, which shall consist of three Members of the Council, in addition to the President and Vice-Presidents, to be elected triennially at the quarterly meeting of the Council in the July preceding the year of award.

3. The award may be made triennially by the Council to a Fellow or Member of the College, not on the Council, who has, during the preceding ten years, done such work in Anatomy, Physiology, Histology, Embryology, or Pathological Anatomy, as in the opinion of the Committee deserves special recognition.

4. The Committee shall report its recommendation to the Council not later than the quarterly Council in April subsequent to the expiration of the triennial period.

5. Should no work by a Fellow or Member of the College in the subjects selected be held by the Committee to be deserving of special recognition the Committee shall report to the Council accordingly.

Election of Officers and Lecturers.

Sir Anthony Bowlby was re-elected President, Sir D'Arcy Power was appointed Senior Vice-President, Sir Berkeley Moynihan was appointed Junior Vice-President, and the following appointments were made:

Pathological Curator, Mr. S. G. Shattock: Assistant Pathological Curator, Mr. C. F. Beadles; Pathological Assistant, Mr. C. E. Shattock; Physiological Curator, Mr. R. H. Burne; Honorary Curator of the Odontological Collection, Sir Frank Colyer.

Hunterian Professors.—Sir Arthur Keith: Six lectures on "Man's posture—its evolution and disorders." R. Lawford Knaggs: One lecture on "Osteitis fibrosa." L. B. Rawling: One lecture on "Remote effects of gunshot wounds of the head." E. M. Woodman: One lecture on "Malignant disease of the upper jaw, with special reference to operative technique." C. A. Joll: One lecture on "The metastatic tumours of bone." H. E. Griffiths: One lecture on "The relationship between disease of the gall bladder and the secretions and functions of the stomach and pancreas." G. L. Keynes: One lecture on "Chronic mastitis."

Arris and Gale Lecturers.—James Alane Coupland: One lecture on "Observations on the human and comparative anatomy of the parathyroid gland, with investigation of its function and relation to post-operative tetany and the surgical technique its presence demands in thyroid surgery." L. R. Braithwaite: One lecture on "Lymphatic flow from the ileo-caecal angle, and its bearing upon gastric and duodenal ulcers and other forms of indigestion." E. B. Flint: One lecture on "Abnormalities of the hepatic and cystic arteries and of the bile ducts, and their surgical significance."

Erasmus Wilson Lecturer.—S. G. Shattock: Six demonstrations on pathological specimens in the museum.

Arnott Demonstrator.—Sir Arthur Keith: Six demonstrations on the contents of the museum.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT their meeting on July 14th the President and Fellows of the College accepted the resignation of Dr. Thomas Mather Thomson of London, of his Fellowship to which he was elected on April 1st 1921.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following candidates have passed the examination of this school at the termination of the sixty-ninth session—April-July, 1922:

*Dr. S. M. Vassallo ("Duncan" medal), *Squad.-Leader G. S. Marshall, *Dr. E. R. Kellersberger, Dr. H. S. Lucraft, Dr. L. M. Moody, Miss C. Shepherd, Dr. O. Teague, Dr. H. Schwartz, Dr. H. C. Berlie, Indian Medical Dept., Major K. G. Gharpurey, I.M.S., Dr. V. Nath, Miss M. Young, Lieut.-Colonel S. Hunt, I.M.S., Captain B. F. Beatson, I.M.S., Dr. C. Dunscombe, Dr. T. M. M. Horsfall, Dr. N. L. Varma, Dr. P. Gupta, Major F. C. Barker, I.M.S., Captain H. J. M. Cursetzee, I.M.S., Dr. D. I. Cameron, Miss N. E. Bleakley, Dr. A. T. Kuriyan, Dr. M. Theiler, Dr. A. R. Cottrell, Dr. G. E. Peacock, Miss J. Cave, Dr. K. N. Choksy, Mrs. L. M. Cottrell, Dr. J. L. Gregory, Dr. J. Jones, Miss M. Norris, Dr. N. V. Pandit, Dr. W. M. A. Rahman, Dr. J. London, Miss M. Murphy, Dr. W. W. Wood, Miss E. O'Keeffe, Dr. Y. Maximos, Dr. A. H. Tawfik.

* With distinction.

Errata.

IN the list of successful candidates for the M.B., Ch.B. degrees of the University of Liverpool published last week (p. 111), it should have been indicated that Mr. H. Cohen received first-class honours with distinction in medicine in addition to surgery and obstetrics.

In the University of Edinburgh pass list, also published last week, on p. 111 an asterisk should have been attached to Mr. W. R. Levie's name to intimate that he had passed with distinction.

Obituary.

ARCHIBALD LANG McLEAN, M.D.,

Late Captain A.A.M.C.

OUR Special Correspondent in Sydney writes: Archibald Lang McLean, who took a prominent place in the great war, and was also medical officer in the Mawson expedition to the South Pole, died in the Royal Prince Alfred Hospital, Sydney, in his 38th year. He was a native of Sydney, and was educated at the Sydney University, where he graduated B.A. with honours in 1906, and M.B., Ch.M. in 1910. After leaving the university he was a resident medical officer at the Lewisham Hospital, and subsequently at the Coast Hospital. He was chosen by Sir Douglas Mawson to accompany his Antarctic expedition as surgeon in charge and bacteriologist for one year, but at the request of Captain Davis he remained a second year. At the outbreak of war he was in England, and soon joined the R.A.M.C. While in France he served with the 13th General Hospital and the 20th Casualty Clearing Station, but was invalided to England in consequence of a poisoned finger. He was then discharged and returned to Australia.

In September, 1917, he joined the A.A.M.C. as captain. During the nine months he was waiting to be sent overseas he obtained the M.D., with the University Prize Medal. He accompanied the A.I.F. to Egypt and France, where he was attached to the 17th Battalion and the 5th Field Ambulance, and while serving in this capacity was twice gassed. He received the Military Cross for gallantry and devotion to duty, the official account stating that—

"During the attack on August 8th, 1918, of Villers Bretonneux, near Amiens, he followed the attacking troops with his section, tending and dressing wounded under fire on the way. Almost immediately after their objective had been taken he established his first-aid post in the village of Warfusé, where he worked continuously under great difficulties with great courage. Later during the advance on the following day, he established his first-aid post almost on the jumping-off line, where he tended and cared for the wounded under heavy artillery fire. His effort during the whole operation has been beyond praise, and had it not been for his tireless attention a large accumulation of wounded would have occurred. His bravery and devotion to duty was most conspicuous."

After his return from the war he was appointed medical officer in charge of the Red Cross farm colony at Beelbangera. He was editor and collaborator with Sir Douglas Mawson in the production of the *Home of the Blizzard*, and was author of a volume of bacteriological and other researches published by the New South Wales Government printing office in 1919.

THE death is reported of Dr. MATTHEW ARDEN MESSITER of Dudley. He was the son of the Rev. G. M. Messiter of Repton, and received his medical education at Queen's College, Birmingham. He took the diplomas of M.R.C.S. in 1873 and L.S.A. in 1874. He joined the late Dr. Houghton in practice at Dudley in the seventies, and early became one of the honorary surgeons of the Guest Hospital, in which institution he took great interest. He was justice of the peace for the county of Worcester, an ex-president of the Birmingham Branch of the British Medical Association and of the Medical Defence Union. Dr. Messiter took great interest in local charities. He leaves a widow and five sons, one of whom is a member of the medical profession, and another is rector of Kingswinford. At the borough police-court, on July 8th, the chairman referred to Dr. Messiter's work on the bench, and expressed the sympathy and regret of the justices.

Medical News.

THE Fellowship of Medicine and Post-Graduate Medical Association will hold a further two weeks' special course in general medicine from Monday, September 11th, to Friday, September 22nd. A morning and afternoon session will be held each day, and the following subjects will be dealt with: Pulmonary disease, including the *x*-ray aspect; cardiology; neurology and mental disease; pathology; medical ophthalmology, etc. Copies of the preliminary syllabus with further details can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole Street, W.1.

A MEMORANDUM by the Ministry of Health (65/M.C.W.) indicates the Minister's present requirements as regards the qualifications and duties of health visitors, and calls attention to a modification in the Board of Education (Health Visitors' Training) Regulations, 1919, extending approval to courses of less than a year's duration in the case of nurses with specified training. Points of interest in the memorandum are: the provision for dispensing for the present with the prescribed qualification in the case of health visitors with previous efficient service; a suggestion for reducing the number of inspectors who may visit a given home, and minimizing travelling by combining kindred functions with those of the health visitor, and the statement that the inspection of midwives, often carried out by health visitors acting under the M.O.H., should be under the direct supervision of a medical practitioner, preferably a medical woman. The Health Visitors (London) Order, 1909, will be rescinded as from January 1st, 1923.

DR. ERIC PRITCHARD has been appointed Consulting Physician to the Queen's Hospital for Children on his retirement from the active staff to take up the post of Medical Director of the Infants' Hospital.

IT was announced last week that the grand total so far received in response to the Combined Appeal for the Hospitals of London is now more than £260,000. This sum includes £60,000 contributed to the Mansion House Fund.

THE annual meeting of the Canadian Medical Association was held at Winnipeg from June 20th to June 23rd, under the presidency of Dr. Edward W. Montgomery. The following officers were elected for the ensuing year: President, Dr. David H. Arnott, London, Ont.; vice-president, Dr. Walter L. Muir, Halifax, N.S.; and secretary, Dr. John W. Scane, Montreal, Que.

IN the list of persons recently made magistrates for the County of Glamorgan are the names of five medical men—namely, Dr. Le Cronier Lancaster, Swansea; Dr. Henry Davies, Abergwynfi; Dr. Hubert Leigh, Treharris; Dr. E. Parry Evans, Llantwit Vardre; Dr. Arthur T. Jones, Mountain Ash.

MR. SYDNEY DUNSTAN, who for sixteen years has had charge of the dispensary and stores department of the Royal Victoria Infirmary, Newcastle-on-Tyne, has been appointed House Governor and Secretary to that institution in succession to Mr. R. H. P. Orde, who has resigned.

A NATIONAL milk conference will be held on October 16th, 17th, and 18th next in the Guildhall, London. A number of papers on the production of clean milk will be read; there will be discussions on contagious abortion, introduced by Sir Stewart Stockman, and on bovine tuberculosis and tuberculin tests, by Dr. Stanley Griffith and Dr. S. R. Douglas, F.R.S., respectively.

UNDER the will of the late Mr. Daniel Clark, of Cheltenham, the following bequests are made: £5,000 each to the Cheltenham General Hospital and the Leeds General Hospital, £2,000 to the Hospital for Poor Patients, Harrogate, £1,000 each to Dr. Barnardo's Homes and St. Dunstan's Hostel. The residue of the estate, which it is expected will exceed £20,000, will be equally divided between the following hospitals: St. Bartholomew's, Guy's, London, St. Thomas's, St. George's, King's College, University College, Charing Cross, St. Mary's, and Middlesex.

MESSRS. H. K. LEWIS AND CO., LTD., medical publishers and booksellers, of 136, Gower Street, London, W.C.1, have issued a small catalogue of the works on medicine and allied subjects sold by them. The books are grouped under subject headings.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

"PASTOR" asks for particulars of Bordighera, N. Italy, as a suitable climate for a nasal or chest case during winter months.

INCOME TAX.

"CYPHER" has had to employ an accountant to conduct his income tax appeal after preparing accounts for him. He asks if he can regard the accountant's fee as a professional expense for income tax purposes.

*** Yes—such expenses are properly allowed.

"CALEDONIA" wishes to know whether income earned under the Highlands and Islands Medical Service Board, varying according to services rendered, may be returned under Schedule D.

*** Yes; they may be included in one sum with the earnings of a general practice. Schedule D assessment, however, would probably be refused if the appointment in question were a whole-time one or nearly so.

"W. S. W." purchased in April, 1919, a 14-h.p. 1914 Austin touring car for £475; in August, 1921, he sold it for £230, replacing it with a new 20-h.p. Austin Coupé, price £850.

*** The difficulty is to ascertain what would have been the cost in August, 1921, of a car similar in condition, quality, and power to that purchased originally. The approximate cost may be calculated as follows, £*x* being the original—that is, new cost—of a 14-h.p. Austin touring car in April, 1919:

Estimated cost of 14-h.p. car in 1921, 14/12 of £550 = £642.
Estimated cost of similar in second-hand condition to first car = $\frac{£642 \times 475}{x}$.

Allowance now due is therefore $\frac{£612 \times 475}{x}$ less £270.

"M. McM." has received "another form, Schedule E 1922–23, with a slip" implying that he will now be assessable on the amount of income for the current or preceding year.

*** Apparently the slip refers to the change effected by Section 15 of the Finance Act, 1922, transferring the assessment of income from all employments to Schedule E. If, however, as we understand, our correspondent's income is derived from his own medical practice, it is still assessable on the three years' average of that income, as the above section has no application to the assessment.

"W. H. N." writes with regard to the assessment of board and lodging.

*** The slip enclosed seems to have no reference to this point—see reply to "M. McM." above. Further, the Finance Act, 1922, appears to leave the law untouched as regards the chargeability of board and lodging—namely, that if the receipt is in kind so that it is not capable of conversion into money it is not taxable (Tennant *v.* Smith), but if the salary is in terms of money subject to a deduction for estimated cost of board and lodging then the whole salary is taxable as the amount retained by the "employer" is not paid for professional expenses.

RELIEF OF PAIN IN ACROMEGALY.

DR. W. GOVER (Hastings) writes: I have under my care a patient with acromegaly who is having the usual recurrent headaches but of most appalling severity; morphine gives some relief, but the condition of the patient, is otherwise so good that she will long outlive the usefulness of morphine. I should be very glad for any suggestions as to *medical* treatment of this condition.

LETTERS, NOTES, ETC.

AN OLD WIVES' FABLE.

DR. J. B. HELLIER (Leeds) writes: I have lately been re-reading Mrs. Gaskell's *Cranford*, with its delightful presentation of early Victorian ways and notions. In Chapter V there is a curious obstetrical point. A mother writes to her daughter, who has just been confined, begging her when she left her room, whatever she did, "to go *up* stairs before going *down*." This curious and apparently irrational advice to make the greater exertion before the less is perplexing. Cranford is said to be Knutsford in Cheshire. I wonder whether any practitioner in that district, or in any other part of the country, has met with this superstition and can shed any light upon its origin and significance.

ARTIFICIAL EYES FOR OPHTHALMOSCOPIC STUDY.

DR. CHARLES J. HILL AITKEN, M.D. (Kilnhurst, nr. Rotherham), writes: I learnt the way to handle the ophthalmoscope and the retinoscope by using the artificial eye. When expert in handling the instruments I advanced to the human subject. From personal experience I can strongly recommend the artificial eye as the first step in ophthalmoscopy.

FOREIGN BODIES IN AUDITORY MEATUS.

DR. ARTHUR T. JONES (Mountain Ash) writes: May I also add a case that came to my notice? A woman over forty years of age came to my surgery complaining of deafness. On examining the ear there was something dark to be seen which I concluded was wax. I syringed the ear and out came a piece of slate pencil about half an inch long, which I showed the woman. She then exclaimed, "It must have been there thirty years. I remember it when I was a girl at school." It had apparently caused her comparatively little trouble.

SPANISH POPES.

DR. PERCY C. GARRETT, Cheltenham, writes: In the JOURNAL of June 24th, p. 1006, Calistus III is referred to as "the only Spanish Pope." Surely his nephew Rodrigo Lancol, afterwards notorious as Rodrigo Borgia, Alexander VI, was equally Spanish, both in birth and sentiment. I think I am correct in saying that Spanish was the language of his family correspondence and family life at the Vatican, and that his policy was mainly that of co-operation with Spain, until his ambition for his beloved Caesare, for whom he obtained a French dukedom and a French wife, led him to incline to the side of France.

MEDICAL GOLFING SOCIETIES.

THE Medical Golfing Society were entertained on Wednesday, July 12th, by Sidcup Golf Club, and played a match against that club. The match was one of eleven a side, and resulted in a win for Sidcup by 6 to 3, with two matches halved. In the first five matches T. P. Kolesar and H. Gardiner-Hill halved with J. Chilton and C. H. Pillman respectively. R. Bristow beat C. H. Myrtle by 4 and 3, while L. Bromley lost to A. M. Johnstone by 2 and 1, and Sir R. Cruise defeated A. S. Myrtle by 2 up. In each match the representative of the Medical Golfing Society is mentioned first. The thanks of the Society are due to Sidcup Golf Club for the kindness and hospitality with which they were entertained.

The tie for the *Lancet* and Henry Morris challenge cups was played off on June 8th, and was won by Mr. T. P. Kolesar, Mr. H. D. Gillies being one down.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 32, 33, and 34 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 30 and 31.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 40.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£ s. d.
Six lines and under	0 9 0
Each additional line	0 1 6
Whole single column (three columns to page) ...	7 10 0
Half single column	3 15 0
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Whole page	20 0 0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.